

**NON-COMMERCIAL ENERGY
DRAFT REVIEW PROCESSES & STANDARDS**
Last Updated 14 April 2010

The proposed review processes and specific criteria are based on allowing the least difficult review process to encourage renewable energy development while ensuring the protection of adjacent property owners.

IDEAS TO FOLLOW UP ON

-Should we require pre-notice for STS applications to allow adjacent property owners the ability to comment on the proposed development as well as the ability to appeal?

-The standards below are based on acreage. Should we include any requirements or limitations for properties which go through a less restrictive review process based on acreage but then later divide the property to an acreage which would have required them to go through a more restrictive process? Such as:

- Require the more restrictive process as a requirement of being able to divide the land.

- Require them to meet all of the property development standards as a requirement of being able to divide the land. (We would likely do this anyway)

-Should met-towers be included in the non-commercial standards?

-What changes need to be made in Chapter 4 with regard to height? Reference towers in Chapter 19 are exempt from the height limitations of the specific zones?

DEFINITIONS

(Either included in Chapter 1 or Chapter 19. Compare to existing definitions)

Commercial Power Generating Facility (Utility Facility For The Purpose Of Generating Power - A facility for the production of energy and its related components that

- a. Generates energy using means listed in ORS or OAR such as solar power, wind power, fuel cells, hydroelectric power, thermal power, geothermal power, landfill gas, digester gas, waste, dedicated energy crops available on a renewable basis or low-emission, nontoxic biomass based on solid organic fuels from wood, forest or field residues; and
- b. Is intended to provide energy for sale

See “Net Metering Facility” and “Non-Commercial/Stand Alone Power Generating Facility” for additional definitions related to energy production.

Communication Tower - A “communication tower” includes any tower designed to support commercial radio, television, and/or telecommunications receiving or broadcasting antennas, dishes, buildings and associated commercial equipment used to transmit or receive radio, microwave, wireless communications, and other electronic signals.

Height Of Tower (should this be generalized to tower?) - The “height of a wind energy system” shall be the vertical distance from the grade to the tallest point of the tower (what about antenna?). For a wind energy conversion system the height shall be measure to the tip of a wind generator blade when the tip is at its highest point.

Meteorological Tower - A “meteorological tower” includes the tower, base plate, anchors, guy cables and hardware, anemometers (wind speed indicators), temperature and pressure sensors, other weather measuring devices attached to the tower, wind direction vanes, booms to hold equipment anemometers and vanes, data logger, instrument wiring, and any telemetry devices that are used to monitor or transmit weather information at a given location.

Net Metering Facility - A facility for the production of power that:

- a. Generates energy using means listed in ORS or OAR such as solar power, wind power, fuel cells, hydroelectric power, landfill gas, digester gas, waste, dedicated energy crops available on a renewable basis or low-emission, nontoxic biomass based on solid organic fuels from wood, forest or field residues;
- b. Is intended to offset part of the customer-generator’s requirements for energy;
- c. Will operate in parallel with a utility’s existing transmission and distribution facilities;

- d. Is consistent with generating capacity as specified in ORS 757.300 and/or OAR 860-039-0010 as well as any other applicable regulations;
- e. Is located on the same tract as the use(s) to which it is accessory and the power generating facility, tract, and use(s) are all under common ownership and management.

See “Non-Commercial/Stand Alone Power Generating Facility” and “Commercial Power Generating Facility” for additional definitions related to energy production.

Non-Commercial/Stand Alone Power Generating Facility –

- a. Generates energy using means listed in ORS or OAR such as solar power, wind power, fuel cells, hydroelectric power, landfill gas, digester gas, waste, dedicated energy crops available on a renewable basis or low-emission, nontoxic biomass based on solid organic fuels from wood, forest or field residues;
- b. Is intended to provide all of the generator’s requirements for energy for the tract or the specific lawful accessory use that it is connected to;
- c. Operates as a standalone power generator not connected to a utility grid; and
- d. Is located on the same tract as the use(s) to which it is accessory and the power generating facility, tract, and use(s) are all under common ownership and management.

See “Net Metering Facility” and “Commercial Power Generating Facility” for additional definitions related to energy production.

Photovoltaic System - A “photovoltaic system” consists of equipment that converts sunlight into electricity and then stores or transfers that electricity. This equipment includes photovoltaic modules and panels, mounting and sun tracking hardware, foundation, inverter, wiring, batteries, or other components used in the system. A photovoltaic system may be a grid connected or stand-alone system. A photovoltaic system does not include a system that utilizes a photovoltaic module or panel that contains a total surface area of nine square feet or fewer.

Related of Supporting Facilities to a Commercial Energy Facility –
 ??????????????????????

Rotor Diameter - The cross sectional dimension of the circle swept by the rotating blades.

Wind Energy Conversion System - A “wind energy conversion system” consists of equipment that converts energy from the wind into usable forms of energy (such as electricity) and then stores or transfers the energy. This equipment includes any base,

blade, foundation, wind generator, nacelle, rotor, wind tower, transformer, vane, wire, inverter, batteries or other component used in the system. A wind energy system may be a grid-connected or a stand-alone system.

Wind Tower - A “wind tower” is the monopole, freestanding, or guyed structure that supports a wind generator.

PROPOSED REVIEW PROCESSES & STANDARDS

Section 19.XXXX Non-Commercial Review Process

A. Overview of Review Processes - Non-commercial energy projects shall be reviewed pursuant to one of the following processes:

1. Ministerial Review: The proposed use must meet all property development standards as well & non-discretionary standards listed in **Section XXXX below**.

This review involves an evaluation by Planning and Development staff but only requires formal zoning approval if the use is required to meet building codes approval. If the use does not require formal zoning approval but that is requested by the applicant for future documentation they will be charged the appropriate ministerial review fee.

2. Subject to Standards/Administrative Review: The proposed use must meet all property development standards, non-discretionary standards listed in **Section XXXX below**, as well as the discretionary standards listed in **Section XXXX below**.
3. Conditional Use Review: The proposed use must meet all property development standards, non-discretionary standards listed in **Section XXXX below**, the discretionary standards listed in **Section XXXX below** as well as Chapter 5 conditional use standards.

B. Tower Review Processes (Fee Standing or Roof Mounted) (**Should this include Met Towers?**)

	<2 Acres	2 - <5 Acres	5 - <10 Acres	>=10 Acres
<35' in height	Ministerial	Ministerial	Ministerial	Ministerial
35' - < 50' in height	STS	STS	Ministerial	Ministerial
*50' - < 100' in height	CUP	STS	STS	STS
100' - < 200' in height	CUP	CUP	STS	STS
>=200' in height	CUP	CUP	CUP	CUP

*Shearers Sprayers indicated that even though they fly as low as 12 feet they said 50' would be a trigger where they would like notification of new towers.

C. Solar/Photovoltaic System Review Processes

	<2 Acres	2 - <5 Acres	5 - <10 Acres	>=10 Acres
*Roof Mounted & < = 35' in height from grade	Ministerial	Ministerial	Ministerial	Ministerial
*Roof Mounted & >35' in height from grade	STS	STS	STS	Ministerial
Stand Alone <500 sq. ft. Height?	STS	STS	STS	Ministerial
Stand Alone 500 - <1,500 sq. ft. Height?	CUP	CUP	STS	STS

Stand Alone \geq 1,500 sq. ft. Height?	CUP	CUP	CUP	CUP
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*What if we they have a 12' tall house and want a 35' tall solar panel structure. Is this an aesthetic concern?

- Current Rule of thumb is 100 square feet per kw of solar.
- NWPUD and Wasco Electric both limit net-metering at 25kw
- What are typical energy demands of a house?

D. Hydroelectric Review Processes

Hydroelectric energy projects are not required to meet property development standards within the zone they are being located and are allowed without any review by the Wasco County Planning and Development Department as long as they are being reviewed by the Oregon Department of Water Resources. (OWRD has a robust review process pursuant to ORS 543 & OAR 690-051-0060 which requires consultation with all applicable state, federal and local agencies. Hydro facilities are precluded in certain areas subject pursuant OAR 690-051-0030. Should we exclude any other areas?)

E. Transmission

Not yet researched.
Any transmission associated with any use must meet all other listed or referenced standards. Even for exempt uses such as hydro.

F. Additional Non-Commercial Energy Development Review Processes

The review process for projects other than those listed below will be decided by the Planning Director based on an evaluation of the primary purpose of the zone, the size of the subject property and surrounding properties, the proposed location of the use and its potential impact to adjacent properties. Impacts include but are not limited to noise, vibration, smell, emissions, visibility, or physical footprint.

Section 19.XXX Non-Discretionary Review Standards

A. General Standards: The following are applicable to all non-commercial energy facilities in addition to meeting the property development standards of the zone and any other listed or referenced standards.

1. Lawful Use - Power will be for a lawfully established use or use that is in the process of being reviewed by the Wasco County Planning Department.
2. Setback/Buffers - Unless otherwise specified, all uses shall meet the property line setbacks of the zone in which they are located, natural resource buffers, as well as any additional setbacks required below. Should we specify guy wires need to meet these as well?

3. Height – Unless otherwise specified, all uses shall meet the height limits of the zone in which they are located. Height shall be measured from the average elevation of the finished grade to the top of the structure. (This is applicable to uses mounted on another structure. Compare this to Chapter 4.)
4. Interconnect Agreement (Net Metering Only) - The applicant shall provide an interconnect agreement (or submitted request) with a local utility. (Work with Wasco Electric and NWPUD to determine what is appropriate)
5. Closed System (Non-Commercial Stand Alone Only) - The applicant shall Provide plan or diagram that proves the proposal is a closed system and will not tie into a utility.
6. Health & Safety –
 - a. Any uses or structures that are dangerous will be designed and constructed to limit access.
 - b. Uses and structures shall be designed and constructed to not impair emergency response. (Is this discretionary? Should this be here or in Conditional Use? Is it already covered by Chapter 5?)
7. Signage -
 - a. No commercial or advertising markings shall be allowed except those of the manufacturer.
 - b. Warning and safety signs, up to three square feet in area, are allowed unless further specified.
8. Decommissioning/Removal - Any facility that is inoperable for more than 12 months shall be deemed discontinued. Removal of the equipment and facilities shall occur within six (6) months of the discontinuance time frame unless all or a portion of the equipment and facilities are converted to an approved use within this same time frame.
9. Other Authority - The applicant shall obtain all necessary local, state and federal authorizations/permits prior to constructing the use.
10. Noise - Manufacturer's sound level estimate shall not exceed 60 decibels, and operation of the system shall be in compliance with noise regulations established by the Oregon Department of Environmental Quality in OAR Chapter 340, Division 35.

B. Specific Standards

1. Tower Standards - (May want to distinguish standards for all towers and WECS specific standards for easier Met tower review if that is included)

a. Setbacks –

- (1) Towers < = 100' in height - The base of the tower shall be set back from all property lines, public-rights-of-ways, and above ground public utility lines a distance equal to the height of the tower. The setback shall be measured to the center of the tower's base.
- (2) Towers > 100' in height - In addition to meeting the requirements of (1) above, for any height above 100' the base of the tower shall be setback an additional 2' for every 1' in height. (This may not be needed but it is worth discussing. If required it may need to be relocated to STS section below)
- (3) Towers shall be allowed closer to a property line, public-right-of-way, or above ground public utility line than the height of the tower without a variance if granted written permission from the property owner, road authority, or utility.

Notwithstanding receiving permission from an adjacent property owner, road authority or utility, towers shall still be required to meet the setback and buffer requirements of the zone in which they are located unless a variance is requested.

b. Minimum Height - In no case shall the lowest sweep of the blade of a WECS be less than fifteen feet above the ground. (is this adequate?) (No maximum height has been included. Anything over 200' in height requires a CUP and an evaluation of its impacts. This process should be adequate.)

c. Aircraft Safety - To ensure visibility of the towers to aircraft, the tower must comply with these precautions to be completed at the time of siting each tower over 100' tall or over 35' tall in an exclusive farm use zone or an area devoted to agriculture. (This may need to be parsed out between ministerial review, STS review, height of tower, size of property and agricultural use or not)

- (1) All guy wires shall be sheathed in a bright orange or yellow color covering them from a height of three above ground to eight feet above ground.
- (2) Place one 55-gallon barrel painted Aviation Orange at each of the outermost guy wire anchors.

- (3) Paint the top 30 feet of each tower with 5 foot bands of alternating colors of Aviation Orange and Aviation White. (at what height should this start for towers less than 100')
- d. Lighting - No lighting of towers is allowed except as required by the Federal Aviation Administration or other federal or state agency. If lighting is required it shall be shielded from the ground in a manner that prevents the lighting from projecting onto adjacent properties, roadways, waterways, as well as preventing the lighting from noticeably contrasting with the surrounding landscape. (This may need to be relocated to STS section if lighting is not required below 50')
- e. Notice. The following signs shall be clearly visible on the tower.
- (1) "No Trespassing" signs shall be attached to any perimeter fence.
 - (2) "Danger" signs shall be posted at the height of five feet on the tower if it has a climbing apparatus.
 - (3) A sign shall be posted on the tower showing an emergency telephone number.
 - (4) The manual electrical and/or overspeed shutdown disconnect switch(es) shall be clearly labeled.
- f. Access
- (1) All ground mounted electrical and control equipment shall be labeled or secured to prevent unauthorized access.
 - (2) The tower shall be designed and installed so as to not provide step bolts or a ladder readily accessible to the public for a minimum height of 8 feet above the ground.
- g. Natural Resource Protections - Bird deflectors shall be placed on all guy wires to minimize the risk of collisions by birds and bats.
2. Solar /Photovoltaic Standards:
- Beyond reflectivity I cannot think of any specific impact of a solar project if it fits the ministerial review criteria. If we are concerned about reflectivity we can include language about minimizing the impact of the reflection to dwellings in the immediate vicinity.
3. Transmission Standards: Not yet researched

Section 19.XXX Discretionary/Administrative Review Standards

A. General Standards: The following are applicable to all non-commercial energy facilities in addition to meeting the property development standards of the zone and any other listed or referenced standards. (I am not sure there are any applicable or appropriate discretionary general standards)

1. Noise - ?
2. Visual - ?
3. Smell - ?
4. Natural Resource Impacts - ?

B. Specific Standards:

1. Tower Standards: (May want to distinguish standards for all towers and WECS specific standards for easier Met tower review if that is included)

a. Visual Impact

- (1) Towers shall be shall be either the stock color from the manufacturer or painted in a non-reflective, unobtrusive color that blends in with the surrounding environment unless otherwise required by the Federal Aviation Administration or Oregon State Aeronautics Division.
- (2) All components attached to the tower shall remain painted or finished the color or finish that was originally applied by the manufacturer.
- (3) Where available, towers shall be set against a visual backdrop that, because of color, texture or topography, helps the tower blend into its surrounding environment. (This probably won't be applicable in most circumstances and may conflict with the need to site a tower in a specific location)
- (4) Wind energy conversion systems shall be sited in a manner that does not result in significant shadowing or flicker impacts. The applicant has the burden of proving that this effect does not have significant adverse impact on neighboring or adjacent uses either through siting or mitigation.
- (5) If visible from a residentially zoned lot, ground mounted electrical and control equipment will be screened. All electrical conduits shall be underground.
- (6) Do we want some other criterion relating to compatibility and impacting the character of the area? This is in the existing CUP criteria.

- b. Natural Resource - Do we limit lattice towers which attract birds to perch and can then be struck by one of the blades?
- c. Electromagnetic Interference - Facilities shall be designed and operated so as not to cause harmful interference with an existing microwave communications link, or other airwaves broadcasts. (Should this be here or in Ministerial review section? How do we make findings about this?)
- d. Notice - Local Aerial Sprayers, the Oregon State Aeronautics Division & Federal Aviation Administration will be provided notice of the proposed tower prior to making a decision. (This won't be needed if we decide to do a pre-notice for all STS applications. This also may need to be distinguished if ODA doesn't want notice for towers 50' like Shearers Sprayers.)

2. Solar/Photovoltaic Standards:

a. Visual Impact

(1) Height Exceeding 35'(free standing or roof mounted)

-Do we want to allow this? It could be likely for a roof mounted structure if the building is at 35' in height.

-If we do should it be allowed without a variance?

-Should there be some exemption for a roof mounted structure that exceeds 35' if it does not exceed a certain height above the roof?

-If we do want to require it to be reviewed, what standards should we include? What is the potential impact?

(2) Scale of Project (Square Footage)

Do we want some other criterion relating to compatibility and impacting the character of the area? This is in the existing CUP criteria.

(3) Reflectivity

(4) Other - I am not aware of any other impacts from solar that needs to be mitigated.

3. Transmission Standards: Not yet researched

Section 19.XXXX Conditional Use Standards

Do we need or want to have any additional review criteria beyond what already existing in Chapter 5?

PROPERTY SIZES

Typical Residential Development Requirements

Septic Drainfield = 7,000 square feet
 House Foot Print = 3,500 square feet
 Well = 100 square feet (estimated)
 Driveway 25' long X 12' wide = 500 square feet
 Total = 11,100 square feet

Property Dimension & Square Footage Comparisons: Included are the full dimensions and square footage by acres as well as those dimensions reduced based on the average residential development included above.

Property Size	Property Dimensions	Available Dimensions	Property Square Footage	Available Square Footage
½ Acre	147' x 147'	103' X 103'	21,780	10,680
1 Acre	209' x 209'	180' X 180'	43,560	32,460
2 Acres	295' X 295'	275 X 275	87,120	76,020
5 Acres	466' X 466'	454' X 454'	217,800	206,700
10 Acres	660' X 660'	651' X 651'	435,600	424,500
80 Acres	1,866' X 1,866'	1,863' X 1,863'	3,484,800	3,473,700
160 Acres	2,640' X 2,640'	2,637' X 2,637'	6,969,600	6,958,500