Whatcom County
Planning & Development Services
Staff Report

Proposed Amendments to WCC Chapter 20.14, Wind Energy Systems

I. Background Information

File # PLN2018-00008

File Name: Amendments to WCC Chapter 20.14, Wind Energy Systems, and WCC Chapter 20.97, Definitions

Applicant: Whatcom County Planning and Development Services (PDS)

Summary of Request: Proposed amendments to WCC Chapter 20.14, Wind Energy Systems, and WCC Chapter 20.97, Definitions.

Location: Countywide.

Recommendation(s): The Planning Commission, Climate Impact Advisory Committee, and Planning and Development Services recommends the County Council approve the proposed amendments.

II. Background

Council placed on the 2018 docket Item No. PLN2018-00008: "Review and, if needed, revise WCC 20.14 Wind Energy Systems," as there was interest in modifying the regulations in order to better promote local wind energy systems.

Developing the amendments was assigned to the Council's Climate Impact Advisory Committee (CIAC), who formed a subcommittee and enlisted the help of Mia Devine, a Renewable Energy Engineer with Spark Northwest, a clean energy consultancy. The CIAC completed their work in September 2022 and provided their recommendations to Planning and Development Services to process. Their goals were to make County code more consistent with evolving federal regulations and industry best practices, and to remove any barriers to developing wind energy in Whatcom County so as to reduce reliance on carbon-based fuels. *CIAC members and the consultant they worked with have been invited to the Commission's meeting to answer questions and describe their proposal.*

As the Council considers the proposed amendments, here are definitions of some of the key terms being discussed.

Meteorological Towers

From WCC 20.97.235, an existing definition: "Meteorological tower (MET tower)" means a structure designed to support the gathering of wind energy resource data, and includes the tower, base plate, anchors, guy cables and hardware, anemometers (wind speed indicators), 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 wind speed and wind flow characteristics over a period of time for

either instantaneous wind information or to characterize the wind resource at a given location. PDS's understanding is that these are small weather data collecting towers installed for generally one year (but up to two) to gather information to determine whether a site would support a wind energy system. They are removed once adequate data has been collected.

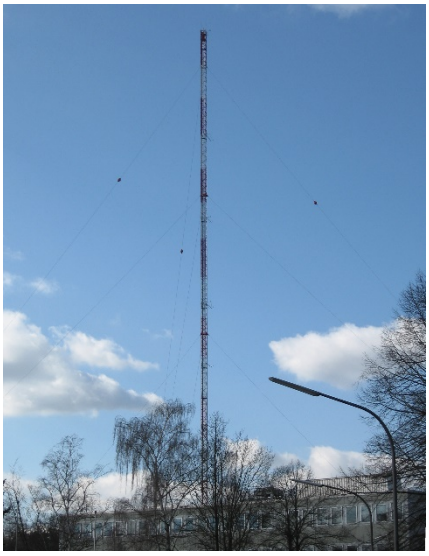

Figure 1. Typical Meteorological Tower

Small Wind Energy Systems (SWES)

From WCC 20.97.426, an existing definition: "Small wind energy system (SWES)" means a wind energy conversion system, with a rated output up to and including 100 kW, consisting of: wind turbine, tower, base and associated control or conversion electronics, as well as all anchors, guy cables and hardware.

PDS's understanding is that these are smaller systems (generally only 1 tower) installed by individual property owners to generate power from their home, farm, or business.

Figure 2. Typical SWES

Wind Energy Systems (WES)

From WCC 20.97.455.1, an existing definition: "Wind energy system (WES)" means a wind energy conversion system, consisting of: wind turbine, tower, base and associated control or conversion electronics, as well as all anchors, guy cables and hardware.

Proposed new definition: "Wind energy system (WES)" means one or more wind energy conversion systems with a rated output greater than 100kW consisting of: wind turbine, tower, base, and associated control or conversion electronics, as well as anchors, guy cables, and hardware.

PDS's understanding is that these are the larger systems used for commercial or utility energy production in wind farms, and may range from several to hundreds of towers.

Figure 3, Typical WES

III. Proposed Code Amendments

The proposed code amendments are found in Exhibit A. Please refer to that attachment; explanations are provided therein. The 8 primary policy issues are:

1. **Changes to §20.14.040, Regulatory Framework:**
   a) Currently, Small Wind Energy Systems (SWES) rated 50 kW or less are outright permitted in all zones. The CIAC proposes that the threshold be raised to 100 kW (so as to be consistent with the US Dept. of Energy's definition of small vs. large systems).
   b) Currently, Wind Energy Systems (WES) greater than 50 kW and up to 500 kW requires an Administrative Use Permit and are only allowed in the Heavy Impact Industrial district. The CIAC proposes that the threshold be raised to 100 kW, and allowed in both the Heavy Impact and Light Impact Industrial districts with an Administrative Use Permit, and in the Agriculture, Rural Forestry, and Commercial Forestry districts with a Conditional Use Permit. According to wind energy experts the CIAC worked with, the coastal area around the Cherry Point industrial area and the Foothills region are the only two areas in Whatcom County that have the wind necessary to make Wind Energy Systems economically feasible (under today's market and technology).
   c) Currently neither SWES nor WES are allowed "Within and 1,000 feet beyond the boundaries of the Lake Whatcom Watershed that are recognized and approved by Whatcom County, except that roof-mounted SWES that do not exceed a total height of five feet above the highest roof peak of the building on which they are mounted are allowed." The CIAC proposes to remove this prohibition as they think the allowances and permitting requirements ought to be uniform throughout the County.

2. **Changes to §20.14.051, Visual Appearance – Lighting – Power Lines:**
   a) The CIAC proposes to delete §20.14.051(2), which requires that "At SWES/WES sites, the design of the buildings and related structures shall, to the extent reasonably possible, use materials, colors, textures, screening and landscaping that will blend the SWES/WES to the natural setting and the existing environment." Their reason is that screening and landscaping to attempt to hide the wind turbine may impede the wind flow and reduce the effectiveness of the WES. Also, "to the extent reasonably possible" is subjective and hard to enforce consistently.

3. Changes to §20.14.052, Setback Requirements:

a) The CIAC proposes to amend the thresholds for when larger setbacks apply, from 50 kW to 100 KW systems; and,

b) Amend the setback requirements:
- For WES: from 1.2 times to 1 times the total structure height
- For SWES:
  - from 1,320 feet to 1,000 feet when abutting a district other than HII; and
  - from 1.2 to 1 times the total structure height when abutting another property zoned HII. (§20.14.052(1))
- For WES or SWES: from 1.2 to 1 times the total structure height from any the existing above-ground power line or telephone line. (§20.14.053(2)); and,
- For WES located within 1,000 feet of existing structures, the CIAC recommends adding a requirement that permit applicants provide an analysis of safety risks, including estimate of range for "ice throw" from spinning blades (§20.14.053(4))

The CIAC's reason for these amendments is to be consistent with the U.S. Dept. of Energy's model zoning ordinance. When establishing setback distances, the intended protective effect must be balanced with economic considerations for wind projects so that accommodating a setback does not unduly threaten the feasibility of the project. In the rare event that a tower collapses or sheds ice, experience has shown that falling components land in a small radius around the tower base. (https://sparknorthwest.org/wp-content/uploads/WindPermitToolkit_WA_Sept-2015.pdf).

4. Changes to §20.14.053, Height Limitations

a) The CIAC proposes to remove the 500-foot height limit for WES and the 100-foot height limit for meteorological towers (§20.14.053(1));

The reason provided is that wind turbine rotors must be placed higher than surrounding obstructions in order for the rotor blades to access the smooth, steady wind flow required to function properly. Height limits can constrain the productivity and economic viability of a wind energy facility and discourage wind development. Height restrictions, if any, should only reflect safety concerns.

b) The CIAC proposes to increase the height threshold from 100 to 200 feet for when a SWES need to obtain an Administrative Use Permit (except in the AG, CF, and HII districts).

The reason provided is that industry best practice is to install the wind turbine on a tall enough tower that the entire rotor is located a minimum of 30 feet higher than any obstacle within 500 feet of the tower. Even in ideal locations with flat, wide open terrain, the minimum recommended tower height is 60 feet. Increasing the SWES height limit above 100 feet would allow for more effective installations at sites with tall trees. Height restrictions, if any, should only reflect safety concerns. The FAA must evaluate and approve of any structure 200 feet or greater above ground level.

5. Changes to §20.14.060, Sound levels, modeling and measurement

a) The CIAC proposes to delete the sound exceedance prohibition of 20/45 dB(a) and replace it with a general requirement that "SWES/WES shall comply with the sound requirements of the zoning district in which it is located," and that they "shall maintain sound levels at project boundaries that are under the maximum levels for the adjacent receiving properties based on

the receiving properties' environmental designation for noise abatement in accordance with state regulations[1]." (§20.14.061)

The CIAC's stated reason is to treat wind turbines consistently with other sources of sound in a particular zone. Modern wind turbines have been designed with features that minimize the sound they emit. Sound diminishes with the square of the distance from the source, which means that doubling the distance between the source and the listener reduces the sound heard by a factor of four. The CIAC believes the recommended revised setback distances should be sufficient to minimize sound impacts on neighboring property during normal operations.

b) They also propose to delete additional sound limits on larger WES (greater than 50 kW) (§20.14.062 and §20.14.063), but,

c) The CIAC also proposes a requirement that "WES proponents shall provide a report by a qualified independent acoustical consultant approved by Whatcom County PDS and in accordance with standard industry best practices, that models the sound transmission of the proposed WES at the project property lines and indicates that the WES, when operated properly, will conform to the sound performance requirements of this chapter." (new §20.14.062)

6. Changes to §20.14.075, Wildlife Protection for WES.

a) The CIAC had proposed substantially augmenting this section, borrow sections of code from jurisdictions along the Columbia River Valley, where wind turbines and cattle ranching are much more prevalent than here in Whatcom County. However, the Planning Commission found much of their language duplicative of WCC Chapter 16.16 (Critical Areas), onerous, and—in some instances—not appropriate for Whatcom County. Thus, staff worked to rewrite that section, keeping non-duplicative language. The language, as approved by the Planning Commission, now augments WCC Chapter 16.16 by requiring additional monitoring for bird and bat fatalities and using Department of Fish and Wildlife's "Wind Power Guidelines" for project siting and operation to minimize take of listed species, migratory birds, raptors, and bats.

7. Changes to §20.14.100 Abandonment, Insurance, and Decommissioning for WES.

a) The CIAC proposes to simplify the decommissioning requirements for both SWES and WES (§.102(1))

b) The CIAC proposes to eliminate the insurance requirement for SWES, retaining it only for WES.

The CIAC's reasoning is that SWES are generally small, privately-owned systems generating power for private use on the site on which it's located. The required setbacks should be ample to prevent damage to neighboring properties.

8. Changes to WCC Chapter20.97, Definitions.

a) In an ongoing effort to consolidate definitions, PDS proposes to move the definitions from **§**20.147.020 and move them to Chapter 20.97 (Definitions). Our goal is to put all definitions in one chapter, rather than individual chapters having their own definitions section, which has led to having multiple—sometimes different—definitions for the same word.

However, in doing so we've found that the current numbering system has gotten unwieldy as words have been added, with some not even being in alphabetical order. Therefore, staff is also

[1] For residential environments, any noise exceeding 70 dB is considered disturbing. Residential limits usually start at 60 or 55 dB (the equivalent noise of a regular vacuum cleaner).

proposing to delete the numbering system, and having all words in alphabetical order. As certain cross-references to words in the code cite the words' (current) number, we are also having to delete all these references and refer only to Chapter 20.97. All amendments shown in Exhibit A from the bottom of page 10 on are solely to meet this goal. No policy changes are proposed.

IV. Comprehensive Plan Evaluation

The proposed amendments are consistent with the following Comprehensive Plan Goals and Policies:

Goal 10D: Strengthen the sustainability of Whatcom County's economy, natural environment, and built communities by responding and adapting to the impacts of climate change.

Policy 10D-6: Convene a climate impact advisory committee by 2017. The advisory committee should consist of (but not be limited to) experts in energy efficiency and carbon emission reduction, representatives from Whatcom County, and interested community members. The committee will be tasked with:

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- Recommend updates to Whatcom County land use policies and development regulations to support renewable energy development goals.

Policy 10D-10: Create updates to Whatcom County land use policies and development regulations to support renewable energy development goals.

V. Proposed Findings of Fact and Reasons for Action

It is recommended the County Council adopt the following findings of fact and reasons for action:

1. Council placed on the 2018 docket Item No. PLN2018-00008: "Review and, if needed, revise WCC 20.14 Wind Energy Systems," as there was interest in modifying the regulations in order to better promote local wind energy systems.
2. Developing the amendments was assigned to the Council's Climate Impact Advisory Committee, who completed their work in September 2022
3. The Climate Impact Advisory Committee's goals were to make County code more consistent with federal regulations and industry best practices, and to try to remove any barriers to developing wind energy in Whatcom County so as to reduce reliance on carbon-based fuels.
4. The Climate Impact Advisory Committee provided its recommendations to Planning and Development Services to process, which submitted an application to process the proposed amendments to the Whatcom County Code (WCC).
5. A determination of non-significance (DNS) was issued under the State Environmental Policy Act (SEPA) on February 7, 2023. No comments have been received to date.
6. Notice of the subject amendment was submitted to the Washington State Department of Commerce on February 3, 2023, for their 60-day review. No comments have been received.
7. The Planning Commission held a duly noticed public hearing on the proposed amendments on February 23, 2023.

8. The County Council held a duly noticed public hearing on the proposed amendments on July 11, 2023.
9. The amendments are consistent with Comprehensive Plan Goal 10D and Policies 10D-6 and 10D-10.

VI. Proposed Conclusions

1. The amendments are in the public interest.
2. The amendments are consistent with the Whatcom County Comprehensive Plan.

VII. Recommendations

The Planning Commission, Climate Impact Advisory Committee, and Planning and Development Services recommends the County Council approve the proposed amendments.

Attachments

1. Draft Ordinance
2. Exhibit A – Proposed Code Amendments