

## **M. Precautionary Principle**

1. Carol Black- Findings of Facts Precautionary Principle and Old Data

OB  
Sent 12/1

**General Comment**

Codes detail requirements that should not be negotiable. Thus, it is critical to have definitive language. Conditional Use Permits rely on discretionary enforcement of complaints, which are often overlooked

**Purpose**

1. Health, Safety, and Welfare – does not address Agricultural Production/Practices and **Aesthetic Value Protection**
  - a. *This is a major oversight, assumed unintentional*
  
2. The county’s Comprehensive Plan supports “renewable energy” as an economic opportunity for landowners. However, the Plan encourages creative, **compatible, and beneficial use** of resource lands where **appropriate and feasible**. The Plan actually addresses making sure that smaller public facilities are **located to minimize impacts on adjacent land uses**, agriculture, and residences; surely the same would be required for large-scale industrial enterprises. Whitman County’s Comprehensive Plan: a) community-centric values, b) impacts on residences, c) preserving large open spaces and sweeping views; d) minimize visual, noise, and light impacts, e) select best suitable locations.
  - a. Formalized goals and policies.
  - b. **Identification of countywide and community-centric values.**
  - c. Promotion of **public health, safety, and welfare.**
    - i. *I wish I had a good definition of welfare; I think it is captured below.*
  - d. Encouragement of regional and local agencies and organizations.
  - e. Coordinated implementation of governmental policies; and
  - f. Protection and conservation of **critical environmental areas and natural resources and mitigation of adverse impacts.**
  - g. Page 9 – **Plan Characteristics:** The Plan shall respond to changing conditions **as well as residents’ needs, values, concerns, and preferences.**
  - h. Page 10 – **FRAMEWORK GOAL – PRESERVE FARMS AND AGRICULTURAL CHARACTER.** Preserve and protect the County’s rural character, which includes productive agricultural lands, **large open spaces, and sweeping views of the Palouse hills**
  - i. Page 20 -- Areas can be classified as mineral resource lands based on site geology, commercial quality and volume of the resource, **site topography, visual aesthetics, economic factors**, compatibility with existing land uses, and land ownership patterns.
  - j. Page 25 -- **Goal LU-9:** Smaller local public facilities constructed to serve local energy needs should be located to minimize impacts on adjacent uses, including agriculture and residences.
  - k. Policy LU-9.1 – **The County should ensure that local facilities, including static transformers, storage facilities, and elements of the gas, power, and broadband transmission system, incorporate measures to minimize visual, noise, light, and traffic impacts when adjacent to residential uses.**
  - l. Pages 77 & 78 -- **GOAL F-5 –FACILITIES CONSTRUCTED TO SERVE ENERGY NEEDS SHOULD BE LOCATED SO AS TO MINIMIZE IMPACTS ON ADJACENT LAND USES, INCLUDING AGRICULTURAL AND RESIDENTIAL LAND USE**
    - i. Policy F-5.1 – **Design of facilities near residential land use should incorporate measures to minimize visual, noise, light, and traffic impacts.**
    - ii. Policy F-5.2 – **Facilities proposed next to agricultural croplands should**

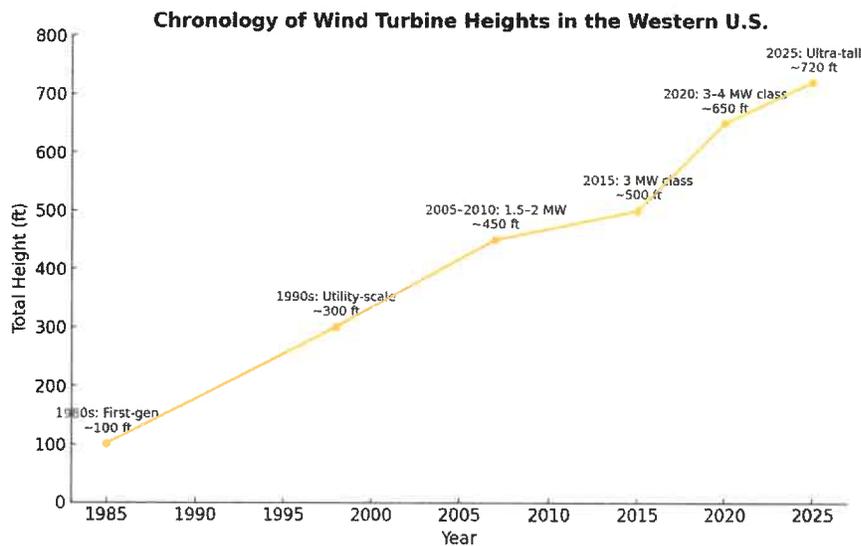
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- incorporate measures to minimize impacts on farm access and practices.
- iii. Policy F-5.3 – Sites proposed for facilities should represent **the best feasible location** to minimize impacts on other land use, given constraints of land availability and costs.
  - iv. Policy F- 5.4 – Require consolidation of antenna and other transmission equipment where feasible (i.e., utility poles, cables, trenching placement) to **minimize adverse aesthetic and environmental impacts.**
3. Washington regulations guide EFSEC (RCW 80.50.010), and the regulations state: It is the intent to seek courses of action that will balance the increasing demands for energy facility location and operation in conjunction with the broad interests of the public. Such action will be based on these premises: One stipulated premise is **“to preserve and protect the quality of the environment; to enhance the public’s opportunity to enjoy the aesthetic and recreational benefits of the air, water, and land resources; to promote air cleanliness; to pursue beneficial changes in the environment; and to promote environmental justice for overburdened communities.”** Whitman County, likewise, must balance the broad interests of the public and not cause harm to neighbors.

### Precautionary Principle, Old Data, VanNess Feldman Letter to Denis Tracy

Greater levels of protection are needed today compared to those drafted before 2015. The taller the turbine, the more noise, shadow flicker, and landscape interference. Apply the **Precautionary Principle** when there is NO current data on 700-foot ultra-tall towers to identify safety measures and monetary impacts for non-participants living in a turbine’s proximity.

Many papers that have been referenced (on the website) rely on old data, particularly the review papers. With the increase of industrial wind complexes around the globe, more current data is being analyzed today, and yet it does not reflect findings based on the height of turbines being installed. For example, the 2008 Washington Supreme Court case was predicated on discussions about impacts from 389-foot turbines, not 699-foot turbines.



### Mid-1990s – Early 2000s: Utility-Scale Arrives

- **Hub height:** 150–200 ft (45–60 m) and **Rotor diameter:** 130–200 ft (40–60 m)
- **Total height:** 250–330 ft (75–100 m)
- First large projects in Oregon, Washington, Wyoming.
- Example: Vansycle Ridge (OR, 1998), 1.5 MW turbines at ~200 ft hub.

### 2005–2010: Modern 1.5–2 MW Class Turbines

- **Hub height:** 230–260 ft (70–80 m) and **Rotor diameter:** 250–300 ft (75–90 m)
- **Total height:** 400–450 ft (120–140 m)
- Widespread buildout in E. Washington (Stateline, Wild Horse, Hopkins Ridge) and Wyoming.
- By 2010, most new projects in the West used turbines in this size class.

### 2010–2018: Taller, Larger-Rotor Machines

- **Hub height:** 260–300 ft (80–92 m) and **Rotor diameter:** 300–400 ft (90–120 m)
- **Total height:** 450–500 ft (140–150 m)
- Big projects in Oregon, Washington, and California re-powerings.
- Example: Tucannon River Wind Farm (WA, 2015) with 3 MW turbines ~500 ft tall.

### 2018–2022: Next-Gen 3–4 MW Class

- **Hub height:** 300–350 ft (92–107 m) and **Rotor diameter:** 400–450 ft (120–137 m)
- **Total height:** 550–650 ft (168–200 m)
- More projects began using taller towers for better wind capture at low-wind sites.
- Examples: Horse Heaven Hills (WA, proposed up to 670 ft); Boardman, OR re-powerings.

### 2023–2025: Ultra-Tall Turbines

- **Hub height:** 350–400 ft (107–122 m) and **Rotor diameter:** 450–550 ft (137–168 m)
- **Total height:** 650–720 ft (200–220 m)
- Now the standard for new projects in the West, especially in Washington, Oregon, Wyoming.
- Some permitted projects (like Horse Heaven Hills, WA, and Rock Creek, WY) allow turbines approaching **740 ft (225 m)**.

### ✓ Trend:

- Every ~10–15 years, turbine height in the western U.S. has increased by ~100–200 ft.
- The next step (late 2020s) may see **800–850 ft** turbines if the U.S. follows European trends.

The VanNess and Feldman *“Role of and information relied upon by planning commission members”* document to Denis Tracy exemplifies that the data being relied on is **OLD** “scientific” data and literature discussions. Please review the “references” listed for each article you review for the relevance of the study/review date and the quality of the data related to turbine heights as presented. A significant fact is that **most scientific studies and discussions do not define turbine height or size of the foundations in their findings**; turbine hub heights/blade length are critical variables for many safety issues, and foundation size impacts sound and water use/management. This could leave a person to think the negative impacts from a 100-foot, 400-foot and 700-foot turbine would be the same.

Below are comments on the age and quality of the data/sources from three articles included in the VanNess and Feldman document.

**2011 - Knopper and Ollson article in Environmental Health (14 yrs old) pages 5-15**; scientific review in Environmental Health

VanNess and Feldman present this as a scientific study; however, it is a review article of papers written before Palouse Winds was built (2012). In a later publication included in the VanNess and Feldman document, the authors refer to the Knopper and Ollson article as a “discussion, not a study.” Of the 37 articles reviewed:

- 22% were published in 2010-2011,
- 58% in 2005-2009, and
- 19% before 2005.

Understand that the studies were conducted before the publication dates -- the MW produced were less, and the hub heights and the blade lengths were much, much shorter. Thus, the data being referenced is not based on 700-foot Ultra-Tall turbines. If you review studies from the mid 1990's to early 2000's, recognize that turbine heights were under 300 feet. Noise and shadow flicker issues are very different with a 700-foot ultra-tall turbine. Even through 2010, turbines were under 450 feet tall. So, the data the county (VanNess/Feldman) may be relying on is based on 250-450 feet tall turbines. Today's proposed turbines are 50% taller than those installed in 2010. The OLD data is not an acceptable “scientific reference point.”

Even 2011 Knopper and Olson recognized old data as an issue. They concluded on page 13 of the VanNess and Feldman document.

- “Assessing the effects of wind turbines on human health is an emerging field, as demonstrated by the limited number of peer-reviewed articles published since 2003. Conducting further research into the effects of wind turbines (and environmental change) on human health, emotional and physical, as well as the effect of public consultation with community groups in reducing preconstruction anxiety, is warranted.”
- “We believe that any physiological based effect can be mitigated through the appropriate set back distances.”
- “Therefore, it is up to our elected officials and ministerial staff when establishing an energy source hierarchy to weigh all of the information before them to determine the trade-offs between “mental and social well-being” of these individuals against the larger demand for energy and its source.”

**2015 - Systematic review of the human health effects of wind farms (pages 27-322)**. Commissioned by the Australian National Health and Medical Research Council.

Again, this 295-page document is a literature review. It references only EIGHT actual scientific studies. They rated the quality of the evidence presented and rightfully pointed out that the quality of the sources used was limited.

- EIGHT articles are actual data-driven scientific studies
- EIGHTY-FIVE articles were a “discussion, not a study,” and
- EIGHTEEN were stated as unsuitable.

I am quite surprised VanNess and Feldman would select an Australian review document such as this to present their judgment. They discovered a lengthy document containing discussions but not many scientific studies.

**Powerpoint** – has no relevance to scientific findings - No credentials were presented for this author, and no references were presented.

**2018 - Environmental Noise Guidelines for the European Region (pages 357-536)** by the World Health Organization Europe.

There were over 300 articles cited in this review. The dates of the articles referenced are:

- 10% in 2016 -2020
- 48 % in 2010-2015
- 19% in 2005-2009
- 23% before 2005.

Again, most of the findings related to the smaller wind turbines developed in the early 2000's with little current data.

**Dr. Olson's presentation was riddled with old data and currently unsubstantiated information.**

Whitman County brought in a "credentialed expert to share their perspectives on health. I question the validity of Dr. Ollson in the area of health and wind turbines. Reviewing his peer-reviewed writings, he has few publications, and they were written between 2011 and 2015, based on turbine heights lower than those at Palouse Winds. He has not conducted any research himself; he has only reviewed others' work and provided his perspective in writings for American Clean Power and others. He has been recruited as a talking expert for government panels, but I do not believe he has the credentials to be unbiased.

With his publication record, Dr. Ollson likely wouldn't secure an interview at WSU for an assistant professorship in wind turbine health, safety, or environmental impacts. I want to emphasize that the current scientific findings do not apply to Ultra-Tall Turbines, especially in the topography of the Palouse. Please apply the Precautionary Principle to safeguard our open spaces and the quality of life for Whitman County residents and others who might be affected by turbines placed too close to their homes and properties.

- **Knopper LD, Ollson CA.** *Health effects and wind turbines: a review of the literature.* **Environmental Health.** 2011 Sep 14;10:78. DOI: 10.1186/1476-069X-10-78.  
(Systematic review of peer-reviewed and grey literature on wind turbines and human health.)
- **Whitfield-Aslund ML, Ollson CA, Knopper LD.** *Projected contributions of future wind farm development to community noise and annoyance levels in Ontario, Canada.* *Energy Policy.* 2013;62:44–50.  
(Modeling study applying published dose–response relationships to predicted noise levels for planned Ontario developments.)
- **Ollson CA; Knopper LD; McCallum LC; Whitfield-Aslund ML.** *Are the findings of "Effects of industrial wind turbine noise on sleep and health" supported?* **Noise & Health.** 2013 Mar-Apr;15(63):148–150. DOI: 10.4103/1463-1741.110302.  
(Letter / published comment addressing methodology and conclusions of an earlier Noise & Health study.)
- **McCallum LC, Whitfield-Aslund ML, Knopper LD, Ferguson GM, Ollson CA.** *Measuring electromagnetic fields (EMF) around wind turbines in Canada: is there a human health concern?* **Environmental Health.** 2014 Feb 15;13:9. DOI: 10.1186/1476-069X-13-9.

(Field measurements of power-frequency EMF near turbines and discussion of health relevance.)

- **Knopper LD, Ollson CA, McCallum LC, Whitfield-Aslund ML, Berger RG, Souweine K, McDaniel M.** *Wind turbines and human health.* **Frontiers in Public Health.** 2014 Jun 19;2:63. DOI: 10.3389/fpubh.2014.00063.  
(Comprehensive review and recommendations on evidence, perceptions, and best practices for siting/communication.)
- **Berger RG, Ashtiani P, Ollson CA, Whitfield-Aslund ML, McCallum LC, Leventhall G, Knopper LD.** *Health-based audible noise guidelines account for infrasound and low-frequency noise produced by wind turbines.* **Frontiers in Public Health.** 2015;3:31.  
(Field measurements + analysis concluding that typical audible-noise siting guidelines also protect against infrasound/LFN in typical scenarios.)

Regarding setbacks, below are his examples for non-participant homes. He did not recognize that times are changing and that codes are continually being updated throughout the country. He was fairly emphatic that his data was current and accurate.

New York – Ollson reported 2x tip height; I found 17 jurisdictions with greater setbacks: one each at 15x and 7x, 15 at 5/6x, and nine at 2.5/3.1x.

North Dakota – Ollson reported 3x tip height; I found 12 counties with greater setbacks, including several at one mile or more.

Wisconsin – Ollson reported a 3.1x tip height; I found three counties with greater setbacks and one county requiring a one-mile setback.

Illinois – Ollson reported 2.1x tip height; I found three counties with greater and one county with a 6x tip height.

Michigan – Ollson reported 2.1x tip height; I found one county at 5x and another at 3,960 ft.

#### **1. Carol Black Comment on the County Planning Division Website**

I reiterate that many of the documents on the current Planning Committee (edit: Commission) website are extremely biased and significantly out of date for newer, much taller technologies. I take great exception to the three ACP articles listed because the President of Vestas North America is the chairman of the ACP Board, and the CEO of ACP earns over \$1.2 million in salary to push for wind turbine development; refer to my April 28 letter. Also, some articles submitted to the Planner and BOCC are not yet posted to the reference list. I caution you about “review articles,” as the articles they review may be decades old. Look hard in the papers for reference to turbine heights.