

Wind Farm Values and Impacts in Klickitat County



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1.0 Overview

The intent of this evaluation was to determine what was being assessed and for how much, whether the assessed value was appropriate, whether all appropriate properties were being assessed, how much was being paid in taxes, and where the tax revenues were being directed, This report addresses those items. Only credible internet references were used in developing the information provided.

2.0 Conclusion and Recommendations

Based on a review of the data provided and the references noted, there are three conclusions:

1. The current wind turbines are undervalued
2. It appears all appropriate properties (e.g. substations, transmission systems, roads) are not being assessed.
3. No changes in valuation have occurred from year to year.

During this review, I noted that the *Klickitat County Energy Overlay FEIS*, page 3-124, Graphic 3-21, *Tax Benefits Associated with Typical Wind Turbine Development*, had used \$ 1 million/Mw in the basis for determining the impact of the wind turbines on tax levies.

Had the county used \$ 1 million/Mw for all evaluations, the difference in tax collections is estimated to be \$ 6 million between 2008 and 2011. Had \$ 2 million/Mw been used, the difference is estimated to be \$ 23 million. Had the county used the value based on the Tuolomne purchase, the difference would have been approximately \$ 38 million. On an annual basis, undervaluing the wind turbine assets could result in reduced income of \$2.7 to \$17.5 million, depending on whether the valuation is \$1 million/Mw, \$2 million/Mw, or \$2.82 million/Mw. Refer to Section 10.2 for more detail.

Klickitat county wind farms are providing significant economic benefit outside the county. At a cost of 10 cents per kilowatt-hour, the retail value of the net electricity generated by the wind farms in 2011 was approximately \$250 million and the Goldendale generating plant provided an additional \$100 million. Refer to Section 10.3 for more detail.

Based on the data evaluation, two recommendations are made:

1. Use \$2 million/Mw for each of the currently operating previously assessed sites, unless the owners can provide a detailed itemized cost basis. One would expect their depreciation schedules would have some legitimacy.

Alternatively, the county does have the option of using the recent 2009 sale as a basis but should consider the \$2.82 million per Mw to include all properties on the site

2. In the future, ensure all properties are assessed.

3.0 Summary

The spreadsheet considered 471 wind generation related properties in Klickitat county that had been valued by the Assessors' Office. The properties included 466 wind turbines, 1 substation, and 4 related buildings.

The base valuation for the wind turbines was \$660,000 per Megawatt (Mw). This valuation is low when one considers the recent wind farm sales that occurred in Klickitat county and elsewhere in the United States (See section 4.0). To gain additional insights on wind farm value, the Department of Energy and other relevant reports were referenced.

4.0 Comparables to determine Fair Market Value

4.1 \$2.82 million/Mw

The Windy Point property, consisting of 62 wind turbines and the M&O building, sold for \$385 million in July 2009 to Tuolumne Wind Project Authority (according to the Modesto Bee, as reported in July 14, 2009 by the Yakima Herald). This price averages \$2.8 million per Mw. By comparison, the county's valuation for the associated properties (wind turbines only) was \$90,865,100, an undervaluation of more than \$294 million.

<http://www.yakima-herald.com/stories/2009/07/14/windy-point-project-sold-to-consortium>

According to Wikipedia, this property also included substations, roads, and transmission lines. If that is the case, the county's valuation did not address these items.

http://en.wikipedia.org/wiki/Windy_Point/Windy_Flats

4.2 \$2.37 million/mw

The Shepherd's Flat project in Oregon is claimed to be \$2 billion for 845 Mw.

http://news.yahoo.com/s/afp/20110418/tc_afp/usjapanitcompanyenergyinternetgooglege

4.3 \$2.21 million/Mw

Bear Creek, PA wind farm was completed in 2006. The project was claimed to be a \$53 million investment with 24 Mw output.

<http://www.highbeam.com/doc/1P2-21061134.html>

4.4 \$ 2.15 million/Mw

Illinois Wind Farms bought by Irish company. An Irish company hoping to benefit from the Obama administration's emphasis on renewable energy purchased three Illinois wind farms in Lee and Boone counties near Chicago.

Mainstream Renewable Power bought the farms from local developers for an undisclosed sum. It'll invest \$1.69 billion to finish the projects. Combined, the wind farms could generate 787 megawatts by 2013.

http://www.huffingtonpost.com/2009/06/15/illinois-wind-farms-bough_n_215814.html

- 4.5** \$ 2 million/Mw
\$2(B) Turbines Bought for Wind Farm. Boone Picken's company, Mesa Power, bought close to 670 winds turbines from General Electric. Total output about 1000 Mw. 2008-2009 timeframe.
<http://www.newschannel10.com/story/8332155/2b-turbines-bought-for-wind-farm?redirected=true>
http://www.forbes.com/2009/10/17/boone-pickens-oil-intelligent-investing-wind_5.html
- 4.6** \$ 2 million/Mw
Renewable Energy Systems Americas sold a 250 Mw wind-farm project 80 miles east of Denver for \$500 million in June 2011.
http://www.denverpost.com/energy/ci_15405264
- 4.7** \$1.86 million/Mw
NextEra Energy Resources LLC, a subsidiary of FPL Group, Inc. purchased 3 projects with a combined generation output of 189.5 Mw for approximately \$352 million in December 2009.
<http://www.bizjournals.com/milwaukee/stories/2009/12/14/daily54.html>
- 4.8** \$1.67 million/Mw
Centennial Wind Farm in Oklahoma cost \$200 million and has an output of 120 Mw.
<http://www.prnewswire.com/news-releases/oge-centennial-wind-farm-to-be-dedicated-for-service-58620112.html>
- 4.9** \$ 1.54 million/Mw
PG&E-related wind farm bought. In 2003, MDU Resources Group, Inc. of Bismarck, N.D., says its Centennial Power, Inc. subsidiary has bought a 66.6-megawatt wind powered electric generation facility from San Gorgonio Power Corp., an affiliate of PG&E National Energy Group for \$102.5 million cash.
<http://www.bizjournals.com/sanjose/stories/2003/01/27/daily77.html>
- 4.10** \$1.27 million/Mw
E.ON, a German firm, completed the world's largest Roscoe, Texas 785 Mw wind farm. Cost was stated as more than \$1 billion in October 2009.
<http://www.reuters.com/article/2009/10/01/wind-texas-idUSN3023624320091001>

5.0 Additional References Considered

- 5.1** *Annual Report on U.S. Wind Power Installation, Cost, and Performance Trends: 2006,* US Department of Energy, Energy Efficiency and Renewable Energy
<http://www.nrel.gov/docs/fy07osti/41435.pdf>

Page 15, Figures 18 and 19 show the trend in installed costs versus time and project size In 2006, installed costs were about \$1300 to \$1350 per kw (or \$1.3 to 1.35 Million per Mw).

5.2 Wind Farms—A Valuation Primer

http://www.appraisalinstitute.org/taj/downloads/TAJ_SneakPreview.pdf

Figure 2 provides a range of values for the various power sources. The wind average is about \$ 2 million per Mw.

5.3 How much do wind turbines cost?

<http://www.windustry.org/how-much-do-wind-turbines-cost>

January 15, 2007

The costs for a commercial scale wind turbine in 2007 ranged from \$1.2 million to \$2.6 million, per MW of nameplate capacity installed.

Most of the commercial-scale turbines installed today are 2 MW in size and cost roughly \$3.5 Million installed.

6.0 Tax Revenues

The following is a summary of data obtained from the spreadsheet:

- a. Number of Wind Turbines associated with the project
- b. Total Megawatts (Mw) associated with the project
- c. Assessors' Office valuation of the devices associated with the project
- d. Taxes assessed by Klickitat County for the general fund and all appropriate levies
- e. Property owner of the non-land Wind Farm properties

| Number Wind Turbines | Mw | Valuation | Taxes | Property Owner |
|----------------------------|-------|----------------|--------------|----------------------------------|
| 133 | 199.5 | \$ 131,670,000 | \$ 1,123,958 | Big Horn Wind Energy Project LLC |
| 43 | 98.9 | \$ 65,274,000 | \$ 399,660 | Harvest Wind |
| 25 | 50 | \$ 39,034,200 | \$ 361,437 | Northwest Wind Partners |
| 89 | 204.7 | \$ 135,102,000 | \$ 1,107,034 | Summit Power |
| 62 | 136.6 | \$ 90,865,100 | \$ 841,364 | Tuolumne Wind Project LLC |
| 114 | 262.2 | \$ 173,396,400 | \$ 1,585,613 | Windy Flats Partners LLC |
| 466 | 951.9 | \$ 635,341,700 | \$ 5,419,065 | Total |

7.0 Tax Levy Assignments

For the 471 properties evaluated, the following is the tax breakdown of the levies:

NOTE The values for the taxing districts were the values specified on the treasurer website. The sum of these differs slightly from the total taxes derived by summing the taxes for the 471 properties by \$0.68 due to rounding.

| | |
|----------------------------------|----------------|
| State School | \$1,343,345.13 |
| Bickleton School #203 | \$685,343.16 |
| Goldendale School #404 | \$472,804.34 |
| Centerville School District #215 | \$124,308.10 |

| | |
|----------------------|---------------------|
| County Road | \$884,850.10 |
| County General | \$725,821.67 |
| Hospital District #1 | \$303,249.23 |
| Fire District #7 | \$180,451.06 |
| Fire District #5 | \$64,882.88 |
| Fire District #2 | \$163,281.54 |
| Fire District #9 | \$72,157.51 |
| Library District #1 | \$317,670.85 |
| Recreation District | \$79,140.23 |
| Cemetary District #2 | \$1,758.99 |
| Total | \$ 5,419,064.79 |

8.0 Property Owners and Assessment Summary

Big Horn Wind Energy Project LLC

400 W 15th St Ste 700
Austin, Texas 78701

133 properties consisting of 133 1.5 Mw GE turbines wind turbines, each valued at \$990000. The \$ 990000 valuation has been in place for 2008, 2009, 2010, and 2011.

| <u>Tax district</u> | <u>Valuations</u> |
|---------------------|-------------------|
| 11 | 133 |

Harvest Wind Project

701 Winslow Way E Ste B
Bainbridge Island, Washington 98110

43 properties consisting of 43 Siemens wind turbines at 2.3 Mw, each valued at \$1518000. The \$1518000 valuation has been in place for 2011 only.

| <u>Tax district</u> | <u>Valuations</u> |
|---------------------|-------------------|
| 9 | 3 |
| 12 | 11 |
| 31 | 39 |

Northwest Wind Partners LLC

700 La Terraza Blvd Ste 200
Escondido, California 92025-3865

27 properties consisting of 25 wind turbines valued at \$1320000 each, 1 substation valued at \$ 5812300, and 1 O&M building valued at \$ 221900. These valuations have been in place for 2011 only.

| <u>Tax district</u> | <u>Valuations</u> |
|---------------------|-------------------|
| 37 | 27 |

Summit Power

701 Winslow Way E Ste B
Bainbridge Island, Washington 98110

89 properties consisting of 89 wind turbines, each valued at \$1518000. This valuation has been in place for 2009, 2010, and 2011.

| <u>Tax district</u> | <u>Valuations</u> |
|---------------------|-------------------|
| 11 | 67 |
| 12 | 10 |
| 31 | 12 |

Tuolumne Wind Project LLC

901 N Broadway
Turlock, California 95380

Windy Point

63 properties consisting of 62 wind turbines (42 Siemens 2.3 MW turbines valued at \$1518000 each and 20 RE power 2.0 MW turbines valued at \$ 1320000 each) and 1 M&O Building valued at \$709100. These valuations have been in place for 2010 and 2011.

Sold for \$385 million to the Tuolumne Wind Project Authority – a California joint powers agency formed by the Turlock Irrigation District and the Walnut Energy Center Authority. Equivalent to \$ 2800000/Mwe.

A question to address is whether the county’s valuation should also include the transmission lines and substations sold.

| <u>Tax district</u> | <u>Valuations</u> |
|---------------------|-------------------|
| 37 | 63 |

Windy Flats Partners

12555 High Bluff Dr Ste 385
San Diego, California 92130

116 properties consisting of 114 Siemens 2.3 MW wind turbines, valued at \$ 1518000 each and 2 M&O Buildings valued at \$ 68200 and \$ 276200. The wind turbine valuations have been in place for 2011 only. The building valuations have been in place for 2010 and 2011.

| <u>Tax district</u> | <u>Valuations</u> |
|---------------------|------------------------------------|
| 6 | 4 |
| 15 | 43 (including building @ \$276200) |
| 36 | 8 |
| 37 | 61 (including building @ \$68200) |

New Projects

Two projects do not have taxes or valuations assigned for 2011. These are the Juniper Canyon and Big Horn 2 developments.

Juniper Canyon has 63 wind turbines rated at 2.4 Mw each. Big Horn 2 has 25 wind turbines (25 Gamesa G87 wind turbines with unit capacity of 2 MW each, <http://www.renewable-energy-sources.com/2011/01/03/iberdrola-renovables-signs-long-term-power-purchase-agreement-for-its-new-harvest-wind-farm/>). These devices are all located in Tax District 11. The owner of both of these projects has the same address as Big Horn, that is,

Big Horn II Wind Energy Project LLC
Juniper Canyon Project Phase 1
400 W 15th St Ste 700
Austin, Texas 78701

9.0 Background Information - Levy Breakdown and related Tax Code Areas (TCAs)

9.1 Levy Breakdown

| TCA | District | Regular | Excess | Levy |
|------------|----------------------|----------------|---------------|-------------|
| 6 | 1-94-F5-L1 | 6.481657 | 0.456543 | 6.9382 |
| 9 | 1-203-L1 | 5.149493 | 2.691551 | 7.841045 |
| 11 | 1-203-F2-L1 | 5.84462 | 2.691551 | 8.536172 |
| 12 | 1-203-F9-L1 | 5.928749 | 2.691551 | 8.6203 |
| 15 | 1-215-H1-F5-C2-L1-R1 | 6.705839 | 2.467434 | 9.173273 |
| 31 | 1-403-F9-L1 | 5.928749 | | 5.928749 |
| 36 | 1-404-H1-F5-L1-R1 | 6.678367 | 2.553637 | 9.232004 |
| 37 | 1-404-H1-F7-L1-R1 | 6.705849 | 2.553637 | 9.259486 |

9.2 Tax Code Areas (TCAs) of Klickitat County

| <u>Tax Code Area</u> | <u>Definition</u> |
|-----------------------------|--|
| 1 | Klickitat County |
| G | City of Goldendale |
| WS | City of White Salmon |
| B | City of Bingen |
| H1 | Public Hospital District No. 1 (Klickitat Valley Hospital) |
| H2 | Public Hospital District No. 2 (Skyline Hospital) |
| L1 | Fort Vancouver Regional Library District |
| C1 | Public Cemetery District No. 1 (White Salmon) |
| C2 | Public Cemetery District No. 2 (Centerville) |
| C3 | Public Cemetery District No. 3 (Glenwood) |
| C4 | Public Cemetery District No. 4 (Maryhill) |

| | |
|-----|---|
| F1 | Fire Protection District No. 1 (Trout Lake) |
| F2 | Fire Protection District No. 2 (Bickleton) |
| F3 | Fire Protection District No. 3 (White Salmon) |
| F4 | Fire Protection District No. 4 (Lyle) |
| F5 | Fire Protection District No. 5 (Centerville) |
| F6 | Fire Protection District No. 6 (Dallesport) |
| F7 | Fire Protection District No. 7 (Goldendale Rural) |
| F8 | Fire Protection District No. 8 (Glenwood) |
| F9 | Fire Protection District No. 9 (Roosevelt) |
| F10 | Fire Protection District No. 10 (Mabton) |
| F11 | Fire Protection District No. 11 (Wishram) |
| F12 | Fire Protection District No. 12 (Klickitat) |
| F13 | Fire Protection District No. 13 (Appleton) |
| F14 | Fire Protection District No. 14 (High Prairie) |
| P1 | Port of Klickitat |

| <u>Tax Code Area</u> | <u>Definition</u> |
|----------------------|------------------------------|
| 94 | Wishram School District |
| 116 | Prosser School District |
| 203 | Bickleton School District |
| 215 | Centerville School District |
| 400 | Trout Lake School District |
| 401 | Glenwood School District |
| 402 | Klickitat School District |
| 403 | Roosevelt School District |
| 404 | Goldendale School District |
| 405 | White Salmon School District |
| 406 | Lyle School District |

10.0 Data Tables

10.1 Wind Projects Table – Worksheet (property data)

This Excel table worksheet lists all wind farm related properties with the associated valuations, taxes, and levy assignments. Line 474 contains the totals for each area.

The table is color code based on owner, turbine or property value and tax code area.

Cells D485:S517 provide summary data.

10.2 Wind Projects Table – Worksheet (tax impact)

This Excel table worksheet lists the summary of turbines, Mw, valuation and tax for 2011. The worksheet calculate the potential impact on taxes collected if different valuations had been used, specifically, \$1 million per Mw, \$ 2 million

per Mw, and \$2.82 million per Mw (the average for the Tuolomne project sale). The calculation considers only the years the specific wind farm has been valued and taxed. The calculation also uses a tax ratio based on the 2011 tax and valuation. Thus this calculation is considered as a gross estimate since obviously taxes and the levy breakdown for each year would have had to be included to be fully accurate. The worksheet does show the consequences of undervaluing the wind turbines, even compared to the county's original 2004 estimate (\$ 1 million / Mw in the *Klickitat County Energy Overlay FEIS*. (see <http://www.klickitatcounty.org/Planning/ContentROne.asp?fContentIdSelected=2119658607&fCategoryIdSelected=-127564322&fX=X> and <http://www.klickitatcounty.org/Planning/fileshtml/200408-EOZ-EIS/01c-Section3.pdf> (page 3-124).

The right hand columns of the worksheet present differences calculated in tax income to date and on an annual basis.

10.3 Wind Projects Table – Worksheet (generation data)

This Excel table worksheet summarizes data obtained from the US Energy Information Administration's *Form EIA-906, EIA-920, and EIA-923 Databases* (see http://www.eia.doe.gov/cneaf/electricity/page/eia906_920.html) for the years 2004-2010 for energy generated by the Goldendale gas plant and the various wind farms. Data includes the megawatt-hours produced with an estimate of the value of that electricity produced.