

Wind Energy Works for Wyoming

Report to the Legislative
Task Force on Wind Energy

August 2009



Power Company
of Wyoming LLC

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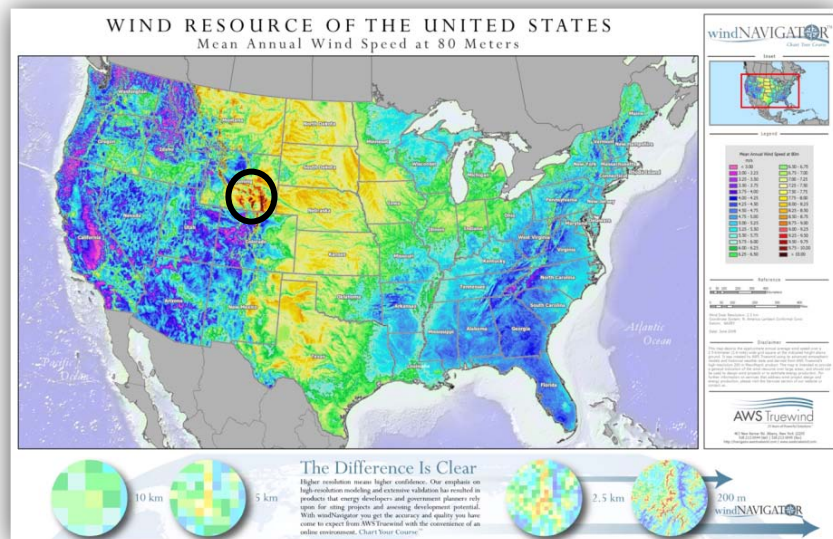
1. Executive summary and recommendations

The United States is facing an unparalleled energy challenge resulting in a critical need for the development of clean, renewable energy and the transmission to support it. State and national leaders are setting goals and passing legislation that requires the use of more renewable energy and requires the reduction of carbon emissions. This need for new sources of clean and renewable electricity comes at a time when additional power generation sources also must be built to meet our growing nation’s electricity consumption needs. Wyoming is fortunate to have the nation’s very best wind resources – Class 6 and 7 – so strong that wind electricity can be generated in south-central Wyoming and shipped hundreds of miles to westward states and still compete on price.

No in-state market exists for all of Wyoming’s potential wind electricity supply. A recently released Harvard study said Wyoming’s supply outpaces local demand by a factor of 220.

It makes economic and environmental sense for Wyoming to encourage smart wind energy development.

Wind is another abundant energy resource that can expand and strengthen the state’s portfolio of energy resources such as oil, gas, coal and uranium. Wind also aligns with the issues and heritage so important to us all. For example, wind electricity requires no water use and requires only a small percentage of “permanent” land area, allowing other uses like grazing and wildlife migration to continue. Wind electricity respects the environment by not requiring fuel and by not releasing particles or toxic materials into the air. Often viewed as a symbol of American energy independence and ingenuity, wind turbines also can be seen as smart infrastructure investments that will further solidify Wyoming’s role as the nation’s leading energy-export state.



Most vital from an economic perspective, wind energy projects will bring thousands of construction jobs and permanent operations and maintenance jobs here, along with providing millions of additional dollars in property taxes and sales/use taxes to sustain and/or expand government budgets, certainly contributing a large and growing “fair share” to Wyoming’s economy. Moreover, with a current tax structure based on property taxes and sales/use taxes after 2011, **wind energy provides predictable, positive prosperity for Wyoming.** Elected officials will be able to forecast and plan their budgets more effectively knowing the levels of property tax revenue that they will receive every year and will receive additional financial boosts through the sales/use taxes that will be paid on all equipment upgrades and parts. For example, one new 2 MW turbine is priced at about \$4 million installed, which would lead to \$240,000 in sales/use taxes (assuming a 6% tax rate) on just one piece of equipment.

To better support wind energy development, the following actions are recommended.

- A significant new tax burden will be added on all wind development when the current renewables sales/use tax exemption sunsets in 2011. To ensure Wyoming wind remains desired by out-of-state utility customers, **we recommend no new tax layers be added.** Otherwise, the state’s wind electricity product risks becoming noncompetitive and therefore not sellable. Also, any additional taxes imposed means less return for private ranchers and landowners who wish to lease their lands for wind development.
- Many regulatory processes exist in the state, slowing wind development and giving other states advantages over Wyoming. To ensure Wyoming wind has its best chance to effectively compete in the national marketplace, **we recommend that project permitting be streamlined.** If a project meets the size requirements to be studied under the Wyoming Industrial Siting Act, then the project should be exempt from county/local permitting. Doing so will ensure consistency of regulation and eliminate redundant review. Counties, local communities and other stakeholders all have the chance to participate in the ISA process, ensuring their concerns and views receive due consideration.
- A myth about wind energy is that “all wind is created equal” and that if turbines are not wanted in one area, they simply can be moved. However, turbine siting reflects a thoughtful, complex analysis that balances dozens of factors, some of which include the strength of the wind resource, geographic features, constructability, environmental and cultural resources, transmission and ability to lease land. But the most vital factors to consider are applicable economic and market forces, because most developers will not risk investing millions of dollars if a reasonable return does not exist. Turbines will not be installed everywhere because this balance won’t be achieved everywhere. So, when a smart project site is identified where analysis shows the balance can happen, **we recommend that private property rights regarding wind development be prioritized and respected statewide.** Attempts to push wind projects toward or away from certain counties or areas would trample the private property rights this state has long held sacred. Regarding sage-grouse, we can show that development in “core areas” can be done consistent with conserving sage-grouse and that we can provide compensatory mitigation through science-based conservation measures.

Responsible wind energy development is poised to bring more benefits, more jobs and more money than any other emerging industry here. The Task Force is urged to help the state make timely, effective wind development a reality and help developers put wind to work for Wyoming.

2. About the Power Company of Wyoming project

Power Company of Wyoming LLC is developing a 2,000- to 3,000-megawatt wind energy project that can significantly help the nation reach its goals to use more domestic renewable energy and generate fewer greenhouse-gas emissions, while providing more jobs and more economic benefits to the state of Wyoming.

PCW LLC's **Chokecherry and Sierra Madre Wind Energy Project** is located entirely in Carbon County, south of the city of Rawlins and town of Sinclair. The project's 98,477 acres are configured like a "checkerboard," where private, state and federal lands are interspersed. The federal lands are managed by the Bureau of Land Management, and the private lands are owned and managed by an affiliate of PCW. Total permanent land disturbance for the turbines, access roads and related equipment is estimated to be less than 5% of the acreage. The strong wind resources here, coupled with ideal and "buildable" terrain, combine to make this an extraordinary site – truly the right wind project at the right place at the right time.

The National Renewable Energy Laboratory rates the wind power resource potential in the project area as "excellent," "outstanding" and "superb." Wyoming winds are recognized as among the very best available, with only 2% of the land area in the continental U.S. having average annual wind speeds above 8.5 meters/second at 80 meters above ground. Of that amount, 25% are in Wyoming and 5% are in Carbon County. Winds fall mainly within NREL's Wind Power Classes 6 and 7 – the highest wind classes with the most potential for development. PCW has gathered more than 2 years of wind data from meteorological towers installed on the project site, further verifying the site's tremendous wind power.

PCW is planning to install 1,000 wind turbines on the site, each rated between 2 and 3 MW, resulting in an installed capacity of 2,000 to 3,000 MW. This is one of the largest planned wind farms in the world. However, due to their proposed locations, the vast majority of the wind turbines will not be viewable from Rawlins or by drivers on nearby Interstate 80.

Currently, the project is being analyzed in an Environmental Impact Statement conducted by the BLM, and a record of decision is expected in fall 2010. Permits from the state of Wyoming and Carbon County also must be obtained. The project will be constructed in three phases and, depending on the timing of the permits, will begin construction in 2011 or 2012.

The project will have a significant positive impact on the renewable electricity needs of our neighboring states and will be able to provide electricity to about 600,000 households. Research by National Grid and other utility experts have concluded that the most likely customers for Wyoming wind-generated electricity are Western states with growing population centers and growing renewable electricity demands. **And Carbon County offers the best combination of highest-quality winds and closest proximity to those Western markets.**

According to a 2009 Harvard University study published in *Proceedings of the National Academy of Sciences of the United States*, the wind energy potential in Wyoming exceeds current total electricity sales in Wyoming by a factor of 220: "the resource in this region...is significantly greater than local demand."

Therefore, finding smart ways to export Wyoming wind power to the western markets that need it makes economic and environmental sense.

3. Economic benefits from the PCW project: Property taxes, sales/use taxes and jobs

A common statement heard about wind development is “What’s in it for Wyoming?” In addition to wind’s clean and clear environmental benefits, its ability to generate fuel-free electricity, and its contributions to keeping Wyoming as an energy-export leader, the answer is **millions of dollars and thousands of good jobs**. The millions of dollars come through the two primary tax streams: Property taxes paid annually and sales/use taxes paid after 2011 on all renewable equipment. The projected millions of dollars to be paid because of the Power Company of Wyoming project is outlined below, along with the anticipated jobs to be created.

In addition, the county and state are already gaining revenue from the investments the company is making to develop this project. For the past two years (and for the next several years), the PCW team and its consultants/vendors are staying in Wyoming hotels and inns, dining in Wyoming restaurants, buying Wyoming products, and hiring Wyoming businesses to perform many services, such as installing and monitoring met towers to measure wind data.

Besides the direct benefits of this project, the state will gain additional sales/use taxes from Wyoming businesses and other businesses supporting wind development. These businesses likely will be investing in new equipment and infrastructure – such as multimillion-dollar trucks, cranes, tools and distribution centers – to support the construction of this and other projects.

Wind energy development is indeed paying its “fair share” in Wyoming, as outlined below. Minerals-based energy sources may be paying severance taxes that wind does not, but wind projects pay higher levels of property taxes and sales/use taxes because of the higher costs of wind equipment (\$2M-\$4M per turbine).

A further important note of context: **Other Western states are aggressively pursuing the jobs and economic benefits** that wind energy will bring to their communities, with an aim to export their wind (and solar/geothermal) energy as well. For example, Nevada in early August held a “Clean Energy Summit” focused on job creation and a mission to be “the leader in clean energy development.” Not only has Colorado’s “New Energy Economy” strategy led to the development of large wind farms, but it also has successfully attracted turbine blade and tower factories and has fostered a new government-industry research partnership, the Colorado Renewable Energy Collaboratory’s Center for Research and Education in Wind.

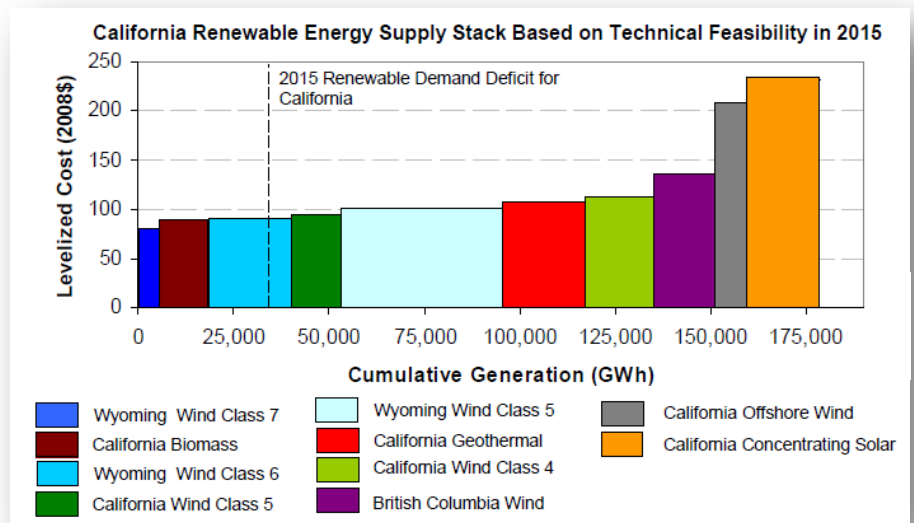
If utility-scale wind projects get built in other states like Nevada and Colorado before being built in Wyoming, those will be the projects that utilities will choose to help meet their state Renewable Portfolio Standard electricity requirements by their respective deadlines. Utilities won’t necessarily pass up closer, though lower-quality wind to wait for further away, but higher-quality Wyoming wind. Wyoming has to compete not only against the speed of project development in other states but also against other renewables options besides wind and against projects in closer proximity to the population centers in the Desert Southwest (Arizona, California, Nevada) most likely to pay for renewable electricity.

Wyoming has the advantage of amazing wind resources but the disadvantage of long distance from the market. Therefore, in order to ensure that these thousands of jobs and millions of dollars in tax revenues will indeed come to Wyoming, it will be vital for wind developers to be able to offer **competitively priced wind electricity** to out-of-state utility customers.

As background on pricing, several recent studies have identified the relative favorable market position of Wyoming’s wind potential vs. other renewable resource alternatives. It is important to note that the renewable energy market is a subset of the overall electric energy market. This renewables market is driven by the states that have implemented renewable energy targets. (All forms of renewable energy receive certain federal subsidies, regardless of location, to help offset the comparatively higher cost of these less mature technologies.)

These broad market analyses that point to Wyoming’s favorable position focus on the high-quality winds and pro-development policies adopted by Wyoming. While the analyses point to a general notion of Wyoming’s favorable position, they do not include some of the basic factors used by wind developers in identifying economic sites. Further, the wind class system established by the federal government does not account for the production downgrade that results from lower air

densities at higher elevations such as Wyoming. This downgrade represents an **average 25% reduction** in energy output compared to a turbine located in the same wind class at sea level. These and other important siting criteria such as relatively level land, access to transportation hubs, and access to transmission all factor into the economics of a potential wind farm.



Wyoming’s market position relative to other renewable resources. Wyoming Class 6 and 7 winds are among the lowest-cost potential resources to supply the California market, for example. Source: National Grid, April 2008

Jobs

PCW’s 1,000-turbine wind project is a major infrastructure development initiative that will generate thousands of construction-related jobs and thousands of opportunities for workers.

In the project’s first year, engineering estimates show that **1,282 construction jobs** will be created – a number that directly aligns with an economic model developed by the National Renewable Energy Lab – and project year 2 and 3 each will create up to 827 jobs as well. (The first construction season has the most jobs because workers will both install turbines and build the access roads.) The NREL model shows that this construction will trigger nearly **11,300 additional indirect and induced jobs**, such as manufacturing of parts and supplies, transportation and shipping, and hotel/restaurant/related services.

PCW will be looking to source goods and services from Wyoming businesses as much as possible, from the industrial-size bottled water needed for workers at the site to the cranes needed to hoist turbine components into place to the concrete companies that will create turbine foundations.

During and following construction, the wind energy project will create **at least 114 permanent, full-time operations and maintenance jobs** that will attract skilled workers, such as windsmiths trained in Wyoming, and their families to Carbon County. This number is consistent with guidance from the American Wind Energy Association and with economic tools developed for the U.S. Department of Energy by the National Renewable Energy Lab, although some in-the-field qualitative data suggest that the number of people needed to staff such a large wind project full-time could be higher. (Currently the largest wind farm in the U.S. has about 430 turbines, so no directly comparable project yet exists.)

Full-time support is needed to perform turbine maintenance and repair, road maintenance and snow removal, computer system administration, project management and general business support services. The wind project also will provide opportunities for existing businesses to benefit and to support the development of new businesses. This is exactly the type of economic development activity and opportunity that will help keep and bring families to Wyoming.

PCW anticipates hiring as many Wyoming electricians, mechanics, equipment operators, welders and other types of skilled workers as can be found. The project's current socioeconomic studies in the Carbon County area indicate that only about 25% of the skilled people needed are available locally, therefore PCW must hire workers from other Wyoming communities and from other states. All project aspects related to workers – from housing to transportation to impact – are or will be studied under the various regulatory processes that apply to our project.

These jobs can help replace or augment current jobs in Wyoming. According to the Wyoming Department of Employment, Research & Planning's most recent jobs report (covering June 2009), "Wyoming's seasonally adjusted unemployment rate increased from 5.0% in May to 5.9% in June." The department also said "Over the year, employment decreased by 7,900 jobs, or 2.6%. The largest job losses occurred in natural resources & mining (including oil & gas; -3,500 jobs or -11.9%) and construction (-3,500 jobs or -11.9%)."

Sales/use taxes

Because the sales/use tax exemption for renewable energy projects will expire prior to the likely start of our project construction, based on a 1,000-turbine project, we will pay an additional estimated **\$234 million in sales/use taxes** over three years – with about \$124 million of that going to Carbon County and its incorporated municipalities to help fund ongoing operations, pay salaries and provide other important community services. Our analysis has been prepared with guidance from the Wyoming Department of Revenue.

Our estimates are built off assumptions including: the Carbon County sales/use tax rate remains at 6%; projected taxable sales are \$3.9 billion (1,000 wind turbines sized at a minimum of 2 MW with related electrical/transmission equipment); 2000 Census population data; and receipt of equipment in Carbon County.

- We estimate **\$234,000,000** in total sales/use taxes will be paid over the anticipated three years of project construction (6% of \$3,900,000,000).

- Of that, the State General Fund is estimated to receive **\$107.64 million** over three years. The General Fund is used to provide services to all Wyoming citizens statewide, including road projects, State Lands & Investment Board grants, health department programs, the state's child health insurance program (CHIP), public safety and related citizen services.
- According to guidance from the state Department of Revenue, our project ultimately will end up financially benefiting all 23 Wyoming counties because **\$1.56 million** of the \$234 million will be distributed statewide. The state turns over a portion of the 4% sales/use tax it collects and divides it based on population statistics. Shares range from \$258,000 for Laramie County to \$7,600 for Niobrara County.
- More significant, more than half of the sales/use taxes end up benefiting the county where the wind farm will be built. The local sales/use tax benefit across Carbon County and its communities is **\$124 million** over three years, or 53% of all sales/use taxes paid.
- This \$124 million will make a significant contribution to Carbon County. For instance, with these revenues, the county would have the option of retiring its 1% Specific Purpose Tax early. The Carbon County Specific Purpose Tax (1%) that voters approved in November 2008 was intended to be collected until the county raised \$46.75 million for specific countywide projects such as water and sewer improvements in Dixon, Baggs and Encampment; water improvements in Elk Mountain, Hanna and Saratoga; water, sewer, curb, gutter and street improvements in Rawlins and Sinclair; and \$11.8 million to improve Carbon County's Memorial Hospital.

Based on FY2008 data provided by DOR, this specific tax would be collected at a rate of about \$6.6 million a year. Therefore it would take about 7 years to raise this money. However, the PCW project alone will raise **\$38.16 million** over three years, or \$12.87 million each year, roughly doubling the collection rate. Because this wind project significantly accelerates the pace of the county's Specific Purpose sales tax collection, the county would have the flexibility to either retire its 1% Specific Purpose Tax early and allow residents to keep more money in their pockets, or to select new Specific Purpose projects to be approved by voters and funded under an ongoing 1% tax. In other words, the PCW wind project alone will contribute more than three-fourths of the entire amount that the county wanted to collect through the 2008 Special Purpose Tax.

- Of that \$124 million, the City of Rawlins will receive an estimated **\$46.39 million** over three years, largely collected under the county's 1% General Purpose Option Tax and the Carbon County share of the state's 4% tax, which are both apportioned within the county to incorporated cities and towns based on population. The Town of Saratoga would receive an estimated \$9.38 million, the Town of Hanna \$4.74 million, and the Town of Encampment \$2.41 million. The Carbon County-specific budget would receive an estimated \$14.58 million plus the \$38.61 million it will collect through its 1% Specific Purpose Tax, for a total of **\$53.19 million**.

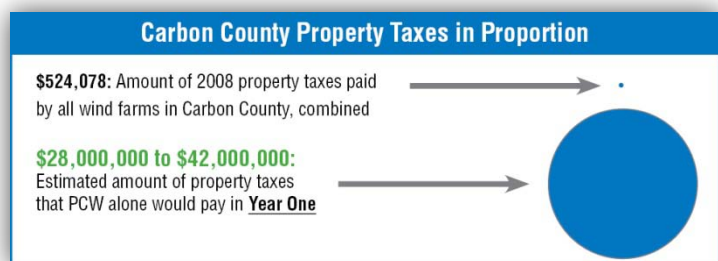
These millions of dollars in sales/use taxes do not include the millions of dollars in sales/use tax payments that likely will be spurred by other Wyoming businesses investing in new equipment to support the construction of our wind project and others in Wyoming.

Property taxes

As of the time of writing this report, the next fiscal year's mill levy rates were not yet available. The following property tax estimates are based on the mill levy for 2008 as applied to taxable entities in Carbon County Tax District 0100, where the majority of the wind project will be.

Estimates show this 1,000-turbine wind energy project will pay between **\$28 million and \$42 million** in Carbon County property taxes in its first full year of existence. (**About \$292 million to \$438 million over 20 years**, based on current depreciation schedules.) That money will provide a major funding boost to local schools, vocational education, the library system, recreation services, the conservation district, the hospital, the museum, and county services for health and safety and road maintenance and repair.

For example, in the first full year of our project, the Carbon County General Fund stands to gain an estimated \$5 million to \$7.5 million in property taxes. Using examples available today, if the county so determined, it could purchase five fully-equipped ambulances with just one-fifth of the money it is anticipated to receive in one year. That amount would also almost equal or exceed the county's entire Building & Grounds budget of \$2.94 million and its Road & Bridge budget of \$3.38 million, as outlined for FY '09-'10.



This predictable revenue (see chart below) gives counties the flexibility to issue bonds against anticipated future tax income, should they so choose. Many counties have expressed a desire to “profit” from wind projects in their communities. With the millions of dollars in property taxes and sales/use taxes to be paid, the developers’ obligations to restore local roads if damaged during construction, the anticipated impact assistance received from the Wyoming Industrial Siting process, and additional jobs created leading to more people spending more money locally, it is clear that counties indeed will see a net gain and benefit from wind projects.

Of the \$28 million to \$42 million in property taxes, about **\$5.5 million to \$8.3 million will go to the State Foundation**, ultimately benefiting all Wyoming citizens as well. Again, these taxes are a revenue source that the state can expect and budget for very year.

Property tax calculations

As discussed below, using the 2008 mill levy for the tax district where the project is located, for every \$1 billion of Fair Market Value, annual property taxes would be approximately \$7 million in the project’s first full year. Currently, the estimated cost of the project as planned is about \$2 million per megawatt for a total cost of \$4 billion to \$6 billion.

I. Ad Valorem Tax Calculation

Wyoming’s ad valorem tax calculation is based on the following formulas:

- Fair Market Value x Level of Assessment = Assessed Value
- Assessed Value x Mill Levy = Property Tax Due

Each of the steps involved in applying these formulas to determine the property tax due is discussed below.

II. *STEP 1 – Determination of Fair Market Value*

The first step in applying the formulas is the determination of the Fair Market Value of the asset at issue as of January 1 of the tax year. The FMV of the project will be determined by either the Carbon County Assessor or the Wyoming Department of Revenue. The DOR has issued a memorandum taking the position that under Wyoming law it will be the authority responsible for determining the FMV of the project. If, however, the DOR is not responsible for determining the FMV of the project, that duty would fall to the Carbon County Assessor. Regardless, the definition of FMV used by both the DOR and the Assessor is the same.

In determining the FMV, both Carbon County and the DOR would consider the cost approach. The DOR indicated it would use historical cost less depreciation. Depreciation tends to be straight-line based on a 20-year economic life resulting in depreciation of 5% per year. Carbon County's contract appraiser would consider a cost approach, likely relying on taxpayer-reported original costs that are trended and depreciated. Both Carbon County and the DOR would value the project's land by capitalizing the rental income.

The DOR indicated it does not deem the income approach to be reliable when valuing wind farms due to issues regarding the potentially long-term contracts for wind energy at below-market rates, tax issues and unreliable expense information. In contrast, Carbon County indicated it would consider the income approach in determining the FMV of the project, again relying on a contract appraiser. The comparable sales approach would probably not be considered by either the DOR or Carbon County given the lack of comparable sales. Finally, if either Carbon County or the DOR valued the project, intangible personal property and pollution control and fire suppression equipment would be exempt.

III. *STEP 2 – Determination of Assessed or Taxable Value*

The Assessed or Taxable Value of property means a percent of the Fair Market Value of property in a particular class. Therefore, the Assessed or Taxable Value of a property is determined by multiplying the Fair Market Value by the appropriate level of assessment. For industrial property, the level of assessment or applicable percentage is 11.5% of the FMV. Wind farms previously assessed in Wyoming have been classified as industrial property and subject to assessment at 11.5% of FMV. Therefore, for every \$1 billion of FMV, the assessed value of the project will be \$115 million ($\$1,000,000,000 \times .115 = \$115,000,000$).

IV. *STEP 3 – Determination of Taxes Due*

To determine the amount of property tax due, the final step is to multiply the assessed value derived in Step 2 by the applicable mill levy.

The project is located entirely within Carbon County and mostly within Tax District 0100. The property tax mill levy for Tax District 0100 in 2008 was 60.457 mills (.060457).

Therefore, for every \$1 billion of FMV resulting in \$115 million of assessed value, the property tax due would be \$6,952,555, or about \$7 million ($\$115,000,000 \times .060457 = \$6,952,555.00$).

V. Carbon County Property Tax Mill Levy Allocation

Here is a breakdown of the distribution of the estimated \$28 million to \$42 million in property taxes collected in the first full year of the project's operation.

<u>Fund description</u>	<u>Percent of total</u>	<u>Estimated taxes received per billion dollars of FMV</u>	<u>Estimated total taxes going to each entity in first full year*</u>
6 Mill Dist 1	7.20%	\$ 500,250	\$ 2,001,000 to \$ 3,001,500
6 Mill Dist 2	2.73%	\$ 189,750	\$ 759,000 to \$ 1,138,500
County General	17.85%	\$ 1,241,310	\$ 4,965,240 to \$ 7,447,860
D#1 Boches	1.65%	\$ 115,000	\$ 460,000 to \$ 690,000
D#1 Operations (Schools)	41.35%	\$ 2,875,000	\$ 11,500,000 to \$ 17,250,000
D#1 Recreation	1.65%	\$ 115,000	\$ 460,000 to \$ 690,000
Fair Gen Tax	.20%	\$ 13,570	\$ 54,280 to \$ 81,420
Jeffrey Center	.21%	\$ 14,260	\$ 57,040 to \$ 85,560
Library Gen Tax	1.27%	\$ 87,975	\$ 351,900 to \$ 527,850
Museum Gen Tax	.33%	\$ 22,885	\$ 91,540 to \$ 137,310
SER Conservation District	1.65%	\$ 115,000	\$ 460,000 to \$ 690,000
State Foundation	19.85%	\$ 1,380,000	\$ 5,520,000 to \$ 8,280,000
Vocation Boches	2.48%	\$ 172,500	\$ 690,000 to \$ 1,035,000
Weed & Pest	1.58%	\$ 110,055	\$ 440,220 to \$ 660,330
Total:	100%	\$ 6,952,555	\$ 27,810,220 to \$ 41,715,330

To put that in context: In 2008, the total taxes payable for Carbon County were \$58,371,583. An additional \$6,952,555 in tax revenue, based on only \$1 billion of FMV, constitutes approximately 12% of Carbon County's 2008 tax revenue.

In 2008, Carbon County's general tax fund revenues were \$9,659,444. An additional \$1,241,310 in tax revenue, based on only \$1 billion of FMV, constitutes approximately 13% of the 2008 general tax fund revenue.

In 2008, property taxes paid by The Overland Trail Cattle Company, the cattle operation that owns the ranch where the project will be located, were \$31,650. If the wind farm had been operational, it would have contributed **1,000 times more in property taxes**.

And Carbon County's assessed valuation for FY '09-'10 is \$1.223 billion. With an assessed value of \$460 million-\$690 million in year 1, our project increases the valuation by 37%-56%.

VI. Depreciated FMV of the project years 2 through 20

Finally, here are the results of applying the straight-line depreciation of 5% used by the DOR to **every \$1 billion of FMV** and the resulting property tax revenue in years 2 through 20.

Remember that this is calculated on \$1 billion of FMV. However, the original value of the project is estimated to fall between \$4 billion and \$6 billion, so property taxes paid would be multiplied by a minimum factor of 4.

Year	FMV/ Depreciated Cost	Assessed Value (11.5%)	Property Tax (.060457) Per \$1B	Total Prop Tax if FMV is \$4B
1	\$1,000,000,000	\$115,000,000	\$ 6,952,555	\$ 27,810,220
2	\$ 950,000,000	\$109,250,000	\$ 6,604,927	\$ 26,419,708
3	\$ 900,000,000	\$103,500,000	\$ 6,257,300	\$ 25,029,200
4	\$ 850,000,000	\$ 97,750,000	\$ 5,909,672	\$ 23,638,688
5	\$ 800,000,000	\$ 92,000,000	\$ 5,562,044	\$ 22,248,176
6	\$ 750,000,000	\$ 86,250,000	\$ 5,214,416	\$ 20,857,665
7	\$ 700,000,000	\$ 80,500,000	\$ 4,866,789	\$ 19,467,154
8	\$ 650,000,000	\$ 74,750,000	\$ 4,519,161	\$ 18,076,643
9	\$ 600,000,000	\$ 69,000,000	\$ 4,171,533	\$ 16,686,132
10	\$ 550,000,000	\$ 63,250,000	\$ 3,823,905	\$ 15,295,621
11	\$ 500,000,000	\$ 57,500,000	\$ 3,476,278	\$ 13,905,110
12	\$ 450,000,000	\$ 51,750,000	\$ 3,128,650	\$ 12,514,599
13	\$ 400,000,000	\$ 46,000,000	\$ 2,781,022	\$ 11,124,088
14	\$ 350,000,000	\$ 40,250,000	\$ 2,433,394	\$ 9,733,577
15	\$ 300,000,000	\$ 34,500,000	\$ 2,085,767	\$ 8,343,066
16	\$ 250,000,000	\$ 28,750,000	\$ 1,738,139	\$ 6,952,555
17	\$ 200,000,000	\$ 23,000,000	\$ 1,390,511	\$ 5,562,044
18	\$ 150,000,000	\$ 17,250,000	\$ 1,042,883	\$ 4,171,533
19	\$ 100,000,000	\$ 11,500,000	\$ 695,256	\$ 2,781,022
20	\$ 50,000,000	\$ 5,750,000	\$ 347,628	\$ 1,390,511
			\$ 73,000,000	\$ 292,000,000

So, even after five years of straight-line depreciation, at the 2008 mill levy for Carbon County Tax District 0100, the property taxes payable for every \$1 billion of FMV are still \$5.56 million, or a total of at least \$22.25 million. After 20 years, the taxes are still a minimum \$1.39 million.

Over a 20-year economic life, PCW will pay an estimated \$73 million in taxes for every \$1 billion of FMV, or **\$292 million to \$438 million over 20 years**. The cost of the project as planned is \$4 billion to \$6 billion with a proposed build-out for the wind farm of three years. The 20-year straight-line depreciation estimate **does not include equipment replacement or future capital additions**, which will boost assessed values and property tax receipts again.

In summary, like all other businesses conducting operations in the state, we believe wind projects already can and will bring their share of economic benefits to Wyoming. Additional taxation would make it much more difficult for wind developers to offer a competitively priced, desirable renewable electricity product to utility customers in other states. If no utility customer or homeowner wants to buy Wyoming wind electricity because they can obtain renewable electricity more cheaply elsewhere, then Wyoming and its economy will lose out.

4. Regulation of the PCW project: Federal, state, county permitting and processes

PCW's experience to date indicates there are process efficiencies that could be gained in Wyoming regarding the way wind farms are regulated and permitted, efficiencies that would benefit officials, decisionmakers and developers alike. Large wind projects and especially those on a mix of land types must meet the highest levels of review to ensure responsible development. There are dozens of regulations to follow and permits to obtain – many requiring the same kind of information to be collected and submitted. More regulation would likely add costs and complications to wind development without yielding any materially different answers.

The PCW wind project will be subject to many federal, state and county statutes and regulations, summarized below. A key point to understand: Because of the permitting process and the extensive analysis, research and study required for permits, current timelines indicate it will take **a minimum of 6 years** from the time the PCW project was conceptualized to the time that it will be completed and able to realize its full potential.

Federal:

Because our project is located on a checkerboard of federal and private land, the Bureau of Land Management is preparing an Environmental Impact Statement regarding potential impacts on environmental, cultural, biological, socioeconomic and visual resources. In conjunction with the EIS, PCW has submitted a detailed Plan of Development to the BLM that covers everything from how the access roads will be constructed to where gear oil will be stored to how the site could be dismantled and reclaimed. Federal statutes and regulations that the project will need to comply with include, but are not limited to:

- National Environmental Policy Act of 1969.
- Federal Land Policy and Management Act of 1976.
- Archeological Resources Protection Act of 1979.
- Archeological and Historic Preservation Act of 1974.
- Bald and Gold Eagle Protection Act of 1940.
- Migratory Bird Treaty Act of 1973.
- National Historic Preservation Act of 1966.
- Soil and Water Conservation Act of 1977.
- Endangered Species Act of 1973.
- Clean Air Act and Clean Water Act.
- FAA construction permit and approval of the lighting and marking of the wind turbines.

State:

ISC Permit: Because the estimated construction cost of the project exceeds \$173.2 million, it is subject to the jurisdiction of the Wyoming Industrial Siting Council. It will be necessary to file an application for an ISC permit pursuant to W.S. § 35-12-109. The application must include:

1. The area of site influence and local governments primarily affected by the proposed industrial facility.
2. Construction and operations work force estimates.
3. Inventory and evaluation of the social and economic conditions in the area of site influence.

The ISC must find that the project will not pose a threat of serious injury to the environment or to the social and economic conditions or inhabitants or expected inhabitants in the affected areas, and will not substantially impair the health, safety or welfare of the inhabitants.

In making this determination, the ISC evaluates the potential impacts of the project on the socioeconomic environment, including the economic base, housing, transportation, sewer and water facilities, solid waste facilities, police and fire facilities, educational facilities, health and hospital facilities, and water supply. This high level of scrutiny is reflected in the size of the final ISC application, which for one recent wind project totaled more than 450 pages of charts, maps and single-space text to outline processes and research related to a 200-turbine project.

The permitting process includes an administrative hearing in which Carbon County can participate. As a result, Carbon County should receive impact assistance funds from the state, which will be in addition to the property tax and sales/use taxes discussed.

Other state permits that may be required:

- WYPDES – Large Construction General Permit.
- Section 401 Water Quality Certification.
- Permit to Construct Small Wastewater Facilities (for Septic Tanks and Leach Field).
- General Permit for Wetlands Mitigation.
- Batch Plant Permit.
- WyDOT Access Permit.
- Permit for Oversized/Overweight Loads.

County:

The project must also be permitted by Carbon County. An application for a conditional use permit will be filed at or near the time that an application is filed with the ISC, because projects have to be permitted at the county level before the ISC will proceed through its process.

A petitioner in Carbon County must “furnish all required and any necessary information so that the planning staff and the Commission may make a well reasoned decision on the petition and to enable it to arrive at a decision/recommendation of approval/disapproval of the application. Information that is deemed to be necessary shall be determined first by the Zoning Officer or Planning Staff and may also be determined by the Commission. Any information which is requested shall be reasonably related to the application.” In addition to providing research, analysis and data to satisfy county permitting requirements, several public hearings and meetings are also part of the process.

Any responsible wind developer would agree that regulations and permits are useful, necessary tools that ensure that project impacts are identified and that appropriate plans will be in place to address them. Wind developers like Power Company of Wyoming LLC are committed to environmental protection and to developing a smart energy project that is good for the company, good for the community and good for the environment. We recognize that responsible wind energy development leads to a “win” for all stakeholders involved.

At the same time, recognizing the tremendous economic and environmental benefits that wind energy development will bring to Wyoming and to the nation, and recognizing the highly competitive market that wind developers face from other states, it would be appropriate and practical for the Task Force to develop and recommend a unified, streamlined path to permitting that eliminates process redundancies and allows good wind projects to be developed under timelines measured in months, not in years.

For example, if a wind project meets the size requirements to be studied and permitted under the Wyoming Industrial Siting Act (currently \$173.2 million and above) process, **then the project should be exempt from further county/local permitting.** Doing so will ensure consistency of regulation and eliminate redundant reviews. Counties, local communities and other stakeholders all have the chance to participate in the ISA process, ensuring their concerns and views receive due consideration.

This would eliminate the need for a separate county permitting process that requires additional resources be spent by local governments and developers alike. Much like a patent court is designed to provide expert review and judgment on patents and intellectual property issues, the Industrial Siting Council could act as a “wind court” with particular expertise on wind development issues and a view toward what is best at both a state and county level.

Furthermore, the Industrial Siting Council would bring longer-term expertise and consistency to evaluation of wind projects. While County Commissioners might turn over every four years, the Industrial Siting Council “consists of seven members who are Wyoming residents. Members are appointed to six-year terms by the Governor with the approval of the Senate. Not more than four can be of any one political party. The Council operates in conjunction with the Department of Environmental Quality.” The ISC is also supported by “permanent” staff members with longtime expertise in economics, environmental issues and planning. The Task Force also might consider directing the ISC to lower its dollar-value threshold for the review and permitting of wind projects to encompass more projects, assuming the county permitting step could be omitted.

Should a consistent ISC-level process not be applied, we recommend that any county regulations regarding wind development be standardized and streamlined so that wind developers have a level playing field regarding timelines, permit fees, legal fees and related permitting resources that must be applied.

Note that the Power Company of Wyoming wind project will be constructed entirely within the existing boundaries of The Overland Trail Cattle Company ranch, on a checkerboard of BLM-managed land and private land owned by a PCW affiliate. Constructing infrastructure on federal land that will harness the power of renewable energy like Wyoming wind is consistent with the U.S. Secretary of the Interior’s Order No. 3285, which says in part, “Encouraging the production, development, and delivery of renewable energy is one of the Department’s highest priorities” and “Increased production of renewable energy will create jobs, provide cleaner, more sustainable alternatives to traditional energy resources, and enhance the energy security of the United States by adding to the domestic energy supply.”

Therefore, responsibly developing the tremendous wind energy resources that exist across the property is not only a wise use of the privately owned lands but also constitutes a significant contribution to the national need for renewable energy. The state of Wyoming can better contribute to national renewable energy goals and policies by helping bring smart wind energy projects to life more effectively and in a more timely manner.

5. Statewide wind development analysis: land use and economic benefits of projected total wind development

The Power Company of Wyoming project is one of several wind farms being developed within Wyoming. Not all of these projects will be constructed. Developers use a number of factors to identify potentially successful projects. Here are more details on these factors and a view on the statewide impact from the wind industry.

Wind resource maps from the National Renewable Energy Lab, the Bureau of Land Management, independent wind consultants and other experts consistently show that Wyoming has some of the nation's best winds. Winds are ranked in classes from 1 to 7. Many areas in Wyoming show winds in Classes 5, 6 and 7, which generally reflect wind speeds above 8 meters per second (18 mph).

According to industry-leading wind consultant AWS Truewind, only 2% of the land area in the continental U.S. has annual average wind speeds above 8.5 meters per second at 80 meters high (262 feet). Of that overall amount, almost 25% is in Wyoming, and about 5% in Carbon County. In other words, 20% of Wyoming's best wind is in Carbon County.

Also vital to understand about wind: Many of the "wind class" maps commonly circulated in Wyoming, such as the NREL map, reflect wind speeds that are *measured at sea level*. However, as everyone in Wyoming is aware, the state's elevation is much higher than sea level. For example, Cheyenne's elevation is about 6,058 feet, Casper is 5,222 feet, Laramie is 7,220 feet and Rawlins is 6,839 feet. Wyoming's higher elevation means lower air density, which in turn causes a performance impact on wind turbines and **reduces power production by an average 25%** compared to sea level turbines, according to AWS Truewind.

Therefore, **wind that appears to be Class 4 on the NREL maps actually reflects Class 3 wind characteristics**. These lower power production capabilities, coupled with Wyoming's distance from market centers, means that NREL Class 4 wind in Wyoming is likely not economically or practically developable for delivery to out-of-state markets. According to the June 2005 BLM Programmatic Environmental Impact Statement for wind energy development, which refers to the NREL wind maps, "Developers using currently available wind turbine technologies have found that sites with wind power densities at Class 4 or higher represent economically viable sites for a wind farm." Much of Wyoming's wind east of I-25 is NREL Class 4, which again due to Wyoming's elevations actually reflect Class 3 characteristics.

In general, the better the winds, the better the potential quality of a wind project. Fast winds, however, do not always equate to developable winds or to economically developable winds.

To create a good, economic wind project, developers must spend hundreds of thousands to millions of dollars on research and studies to determine whether a wind farm will make sense. Ultimately, wind turbine siting reflects a thoughtful, complex analysis that balances dozens of factors, some of which include the strength, timing and consistency of the wind resource, geographic features and terrain, physical constructability, location of environmental and cultural resources, access to transmission, distance to markets, ability to mitigate potential impacts, and the willingness of the landowner to lease the land.

Winds also are studied for frequency, seasonal and daily variability, the directional source of the greatest winds, and air density and elevation since as mentioned previously, higher elevations and associated lower air density affects wind turbine performance metrics.

But the most vital factors to consider are the applicable economic and market forces, because most developers will not risk investing millions of dollars if a reasonable return does not exist. Wind turbines cannot and will not be installed everywhere because this balance simply cannot be achieved everywhere, and free market principles of supply and demand will create natural “caps” to Wyoming wind development too. According to the textbook *Wind Energy Explained* (John Wiley & Sons Ltd., 2002), “profitable wind resources are limited to distinct geographical areas. The introduction of multiple turbines into these areas increases the total wind energy produced.” Any fears of seeing “turbines everywhere” in Wyoming are unfounded because neither the wind resources nor the business cases would support it.

Thus, wind development – and the jobs and tax revenues that come with it – will only be found in certain Wyoming places. When people suggest that wind development could easily be shuffled from one part of the state to another, it is as illogical as suggesting that elk hunters should head to Iowa for the best game, or that mountain climbers should go to Kansas for the best climbs, or that coal should be mined in Florida. Like elk, coal or any number of other natural resources, the best, most developable Wyoming winds simply are where they are. And wind projects can be developed in a manner consistent with environmental conservation.

Wind development across Wyoming

Many have attempted to quantify the amount of developable winds in Wyoming. Sources such as NREL estimate there are 116,670 MW of developable Class 5-7 winds in Wyoming, and that Wyoming has over two-thirds of the developable Class 7 wind and over one-half of the developable Class 6 wind in the onshore United States. The American Wind Energy Association ranks Wyoming 7th in terms of its future wind potential, with 85,200 MW of potential capacity estimated.

However, the general industry viewpoint is that the amount of wind that actually will be developed in Wyoming is far lower than that, due to the mix of environmental and economic factors as briefly outlined above.

The Western Renewable Energy Zones initiative estimates that about 14,239 MW of Class 5 and above winds will likely be developed. The numbers generally heard in industry discussions related to wind and transmission is that **only between 10,000 and 15,000 MW of Wyoming wind in total are likely to be developed.**

As a result, here is a projection of what 12,000 MW of wind development would look like in Wyoming and what financial benefits it would bring. This assumes 12,000 MW of wind coming from 6,000 2-megawatt turbines.

First, “permanent” land use would be relatively small. According to the U.S. Department of Energy “20% Wind Energy by 2030” report, the amount of land needed for 1 turbine plus associated access roads and electrical equipment would equal about 1 acre.

The following data puts into perspective how much total land would be disturbed and used for turbines and access roads in Wyoming, if they were all added together, and includes a 2-acre-per-turbine scenario as well.

Scenario for 1 acre per turbine + access roads and equipment

- 1 acre x 6,000 turbines = 6,000 acres
- 6,000 acres is .00965 percent of Wyoming’s total 62.14 million acres, or only *9.37 square miles* of permanent land use, equaling about one-quarter of 1 township.

Scenario for 2 acres per turbine + access roads and equipment

- 2 acres x 6,000 turbines = 12,000 acres
- 12,000 acres is .0193 percent of Wyoming’s total acres, or only *18.74 square miles* of permanent land use, equaling about half of 1 township.

By comparison:

- One township: 36 sq mi
- Carbon County: 7,896 sq mi
- Yellowstone Park: 3,472 sq mi
- Casper: 24 sq mi
- Cheyenne: 21 sq mi
- Laramie: 11 sq mi

Of course, the state’s wind turbine population would not be lumped into one solid plot. But turbines typically are grouped into concentrated clusters to minimize land disturbance and to make operations and maintenance more efficient, while being arranged to maximize the wind resources and allow wildlife and grazing corridors. Assuming clusters of 1,000 turbines are spread across 100,000 acres, then 6,000 turbines would be distributed across 600,000 acres, which is still less than 1% of Wyoming’s total land acreage.

Second, here are the estimated jobs and financial benefits for 12,000 MW of Wyoming wind, based off Carbon County tax data as applied to the Power Company of Wyoming project.

Estimated financial benefits of 12,000 MW (6,000 2-MW turbines) to Wyoming	
Permanent, full-time O&M jobs	700
Construction jobs	800 per year for 10 years (assuming 600 turbines built per year)
Sales taxes	\$1.404 billion
Property taxes	\$1.7 billion to \$2.6 billion over 20 years

This does not include the other financial benefits sure to come to the state and counties through increased sales/use tax revenue that businesses would pay when buying new equipment to support wind energy construction and development.

It also does not include the economic stimulus that wind development would provide to Wyoming businesses through increasing the demand for local goods and services.

6. Conclusion

Expanding the business of wind electricity generation in Wyoming stands to bring multiple benefits to the state and its citizens, including thousands of additional high-paying job opportunities, millions more in sales/use tax revenue, and millions more in property tax revenue that can predictably boost government budgets for years to come.

Furthermore, wind energy provides a solid, dependable complement to the state's existing up-and-down energy and economic portfolio. Much like Wyoming's abundant mineral resources have done in the past, Wyoming's wind resources can help keep our state a respected leader in energy development in the future, especially given the nation's growing thirst for more renewable-energy resources. Wind can be developed in an environmentally responsible way.

However, because the market for Wyoming wind is hundreds of miles away and requires delivery by electric transmission lines, care must be taken to ensure that wind development is not overtaxed or barricaded to a degree that makes Wyoming wind electricity noncompetitive in the renewable energy market (which also includes solar and geothermal resources). Also, cumbersome and lengthy permitting processes can put Wyoming wind development at a disadvantage compared to other states that are working to speed their wind projects ahead. Market forces and siting studies will assure that wind turbines cannot and will not be placed in every county across the state, so encouraging those sites where wind development can economically work should be supported for the benefit of the state, its citizens and the nation.

Power Company of Wyoming LLC is committed to developing a sensible, economical wind energy project that will be a source of pride to the county and to the state for years to come. We look forward to doing our part to transform Wyoming wind into marketable, desirable renewable electricity.

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