

## Information from Joe Wood

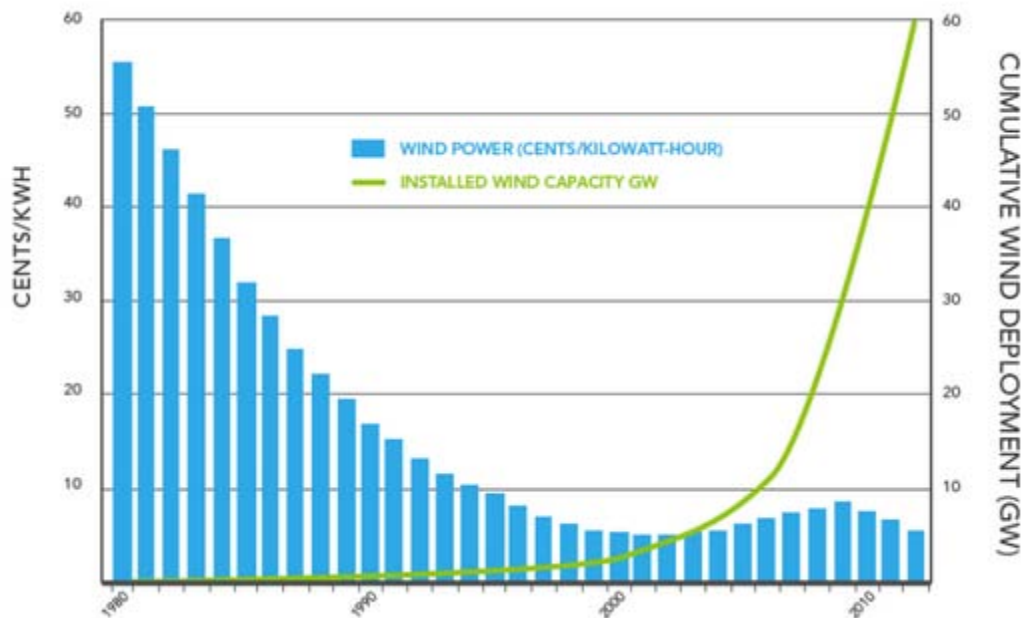
Joe Wood with Volkswind addresses several topics and questions asked by members of the Working Group from the March 12<sup>th</sup> meeting:

- Does it make a difference about costs in a public power state?

>> Cost of procuring energy resources by public power is not substantially different from that of any other type of power utility (the difference is in the ownership of the utility – for example an investor-owned utility would be regulated but could earn a state-allowed return on its assets, whereas public power is presumably owned by its members, like a cooperative; its elected Board making key decisions).

Power cost drivers in Nebraska are the same as those in any other state. Cost of fuel-based energy (coals, gas, etc.) is a function of the cost of fuel. Emissions policy also drives cost. Fuel-based energy must comply with emissions standards. As emissions standard rise, cost will rise.

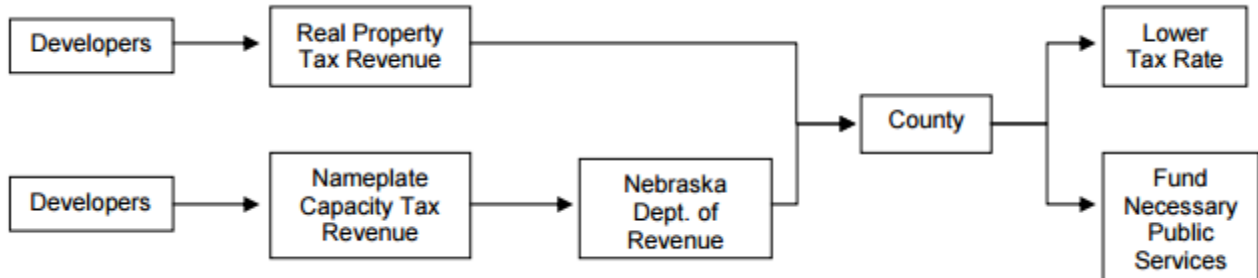
As wind energy requires no fuel, the main factors are capital cost and productivity. We have seen capital cost of wind energy fall by over 50% in the last 5 years. Moreover, in Nebraska where the wind resource is well above average, energy costs are further driven down by productivity (a given level of capital cost is producing more energy).



Here is a good source of information and excellent charts relating to cost-impact of wind energy:  
<http://www.awea.org/Resources/Content.aspx?ItemNumber=5547#CostofWindEnergy>

- Where do wind energy taxes go?

>> Wind energy projects will generally have two primary types of tax in Nebraska: Nameplate capacity tax and real property tax.



Baird Holm estimates the combined tax to be approx. \$6,626 annually per MW of installed capacity, roughly two thirds of which would be distributed to local public schools. Hallam Wind Project is planned as a 125MW project. The Baird Holm / Bluestem report can be found here:

[http://www.bairdholm.com/images/Property\\_Tax\\_Relief\\_through\\_Wind\\_Energy\\_in\\_Nebraska.rev.pdf](http://www.bairdholm.com/images/Property_Tax_Relief_through_Wind_Energy_in_Nebraska.rev.pdf)

- Do wind turbines cause signal interference?

>> A project must not interfere with established radio or microwave signals over a wide frequency range (900 MHz – 23 GHz). Most commercial scale wind projects engage a company called “Comsearch”, who maintains a comprehensive database of licensed microwave networks in the US, to report on potential impact of wind turbine layout on any licensed, proposed and applied non-federal government microwave systems. In addition, projects provide their layout to the United States Department of Commerce – National Telecommunications and Information Administration, requesting a review by all federal agencies represented in the Interdependent Radio Advisory Committee to identify any concerns regarding blockage of radio transmissions, after which the NTIA sends a letter informing of any such concern.

- Do developers carry liability insurance?

>> A prudent commercial enterprise will carry general commercial liability insurance. In addition to any applicable property coverage, Volkswind USA Inc., sponsor of Hallam Wind LLC carries general liability coverage with a minimum combined single limit of twenty million dollars each occurrence and twenty million dollars general aggregate coverage.

- When is fencing necessary?

>> We know of no fences (other than at the project electrical substation) used in any commercial wind facilities in the US, nor does Hallam Wind Project plan any fences. Occasionally when a landowner requests, gates may be used on access roads, with keys and access provided to the landowner.

- What are the requirements for lighting of wind turbines?

>> At the federal level, any structure in the US planned to exceed 200 feet above ground must submit a form to the Federal Aviation Administration for obstruction analysis. The FAA (together with review by any relevant Federal agency and the Department of Defense) makes a determination of the structure and any potential impacts to private or commercial airspace or military ops. If it is determined the project constitutes no-hazard to air navigation, it will also analyze the project as a whole and provide its recommended lighting requirements. Prescribed lighting is typically a slow blinking red light, let's say on half of the turbines in the project. Ultimately the FAA requirements dictate. In addition, newer technology is in development and subject to FAA approval with radar-activated lighting, which can detect aircraft presence and thus vary the lighting and intensity according to the need.

- What is the design strength of a wind turbine?

>> Foundation and structure design for commercial wind turbines are subject to national and state level engineering specifications and standards. Well-known turbine manufacturers such as General Electrical and Siemens are industrial, global conglomerates held to the highest quality and safety standards, and may be familiar to many (as they make medical equipment, locomotives, jet engines, power equipment, and household goods).

Foundations are subject to a site-specific geotechnical and seismic study of soil conditions and designed to meet at least a 20-year service life. Calculations are conducted to include fatigue loads and extreme load conditions (for example extreme winds, turbulence and earthquake). Design specs must comply with local, state and federal civil standards. All manufactures conduct a site-specific suitability analysis, taking into account a 25-year design life and extreme conditions analysis, for the tower, nacelle and blade design and materials. As with any mature industry, the top tier manufacturers have thousands of units of existing fleet around the world, and conduct rigorous prototype testing prior to making new technology commercially available. All of the top-tier manufacturers offer warranties, and also the knowledge that if their units fail or exhibit problems in operation, such an event will be known to the market and have an impact on reputation and demand for their product.

- What is the actual energy generated annually by a turbine compared to potential output?

>> Wind turbines generally produce between 30 and 45% of their nameplate capacity on an annual basis. The "capacity factor" is primarily a function of the wind resource conditions (as well as repair down-time etc., but generally turbines are available over 95% of time). In Nebraska, wind resource is excellent. At Hallam Wind, the capacity factor is expected to be above 40%, which is well-above average for commercial wind energy resource.

- What is the typical emergency response to a wind turbine fire?

>> It is our expectation the respective county (in the case of Hallam Wind, would be Gage and Lancaster) will require a 911 address associated with each tower in the project. Thus, emergency response will be specific to each tower location just as for any house or building in the county. Moreover, the project operations and maintenance manager will have its own emergency response procedures. As a commercial facility always has a real-time, fiber-optic-connected monitoring system it is likely the facility operator will be the first aware of any fire or unusual operating condition at any of the towers.

- Provide an example of employee safety manual for a tower

>>An example of GE's safety manual can be found online at the Ohio Power Siting Board web site (OPSB regulates siting of wind farms in Ohio).

<http://www.opsb.ohio.gov/opsb/assets/File/12-0160-GE%2015%20Turbine%20Safety%20Manual.PDF>

- What is the nameplate tax benefit to counties of wind turbine towers?

I have spoken with the Gage county assessor's office and in the next couple months they should receive their first payment of the Nameplate Capacity tax for a full year of operation of 12 turbines. This should amount to roughly \$71,767.00. I have also spoken to the assessor's office and they've described to me how they deal with property tax as well (Value of turbine foundation is added as structure improvement adding to assessed property value and wind farm owner pays this part of the bill) . I am attaching the nameplate capacity tax regulations. Title 316 from the Nebraska Department of Revenue, Chapter 13 on Nameplate Capacity Tax can be found here:

<http://www.revenue.nebraska.gov/legal/regs/nameplate.html>

#### **Other Links provided by Joe Wood:**

Here is a link to the Nebraska Public Power District, public power information guide:

<http://www.nppd.com/assets/publicpowerinformationguide.pdf>

Here is a link to a one page information sheet on Steele Flats Windfarm in Gage and Jefferson County, Nebraska.

[http://www.nexteraenergyresources.com/pdf\\_redesign/steele\\_flats.pdf](http://www.nexteraenergyresources.com/pdf_redesign/steele_flats.pdf)

There are numerous studies linked on this Volkswind webpage that are relevant to the discussion on this website that is specific to the proposed Hallam Wind Energy Project.

<https://hallamwind.wordpress.com/>