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What Do You Know About Renewable Energy in Kansas?

Take the following energy quiz and see!

Q. 1. Do you have an understanding of Renewable Energy resources in Kansas?

A. Renewable Energy is defined as energy captured from sources that are virtually inexhaustible because the earth, through natural processes, replaces it at a rate that is equal to or faster than it is consumed.

Kansas has available abundant wind energy, abundant solar energy, some hydropower, and increasingly, crop-based biofuels such as ethanol and biodiesel. Ethanol and biodiesel are generally considered to be useful as vehicle fuels. Kansas also has potential for biomass based fuels such as switch grass, crop residues and wood. These most likely would be used for electrical energy or heat production.

Not all renewable energy sources are equal. Some sources, like wind and solar, are available in vast immeasurable quantities. The costs of using them are tied up in the devices that collect the energy and convert it. Other types of energy require considerable effort and expense of fossil energy in order to harness them. The return of energy *harnessed* over energy *expended* to capture it, is called the **Energy Profit Ratio**. In that sense, some are highly renewable, and some are barely renewable. Policy makers should consider that factor when promoting one type of energy over another.

Other types of energy that are often discussed may be cleaner burning, but do not meet the criteria for renewable energy. *Coal gasification*, if perfected, may provide cleaner use of coal, but coal remains a finite fossil fuel so it is not a renewable. Also, there are presently no operating commercial coal gasification plants in the U.S. Nuclear energy, while cleaner than coal if all goes well, is often excluded from the discussion of renewables because of the inability of society to deal with the dangerous wastes at this time.

Q. 2. Would Wind be a good energy resource for Kansas to utilize?

A. Kansas has a total wind energy potential of 121,900 MW. This ranks third of all states in the U.S. At present, Kansas has 364 MW of wind energy installed.

Source: Wind Energy Potential - An Assessment of the Available Windy Land Area and Wind Energy Potential in the Contiguous United States, Pacific Northwest Laboratory, 1991.

Q. 3. Do you understand why states with less wind, have more wind development helping their rural communities than Kansas?

A. Minnesota and Iowa both have wind resources of lesser quality than Kansas, yet they both far exceed Kansas in wind turbine installation. This is because of public policies such as **Renewable Portfolio Standards (RPS)** that encourage the development of wind energy, especially community owned wind projects. In addition, taxing policies in those states insure that the harvesting of the state's wind resources benefit local government, including schools and counties. This has made them more acceptable to the entire communities in which they are located.

**TOTAL INSTALLED U.S. WIND ENERGY CAPACITY: 10,039 MW as of July 31, 2006
Graphic: U.S. Installed Capacity, 1981 - 2005
© 2006 by the American Wind Energy Association.*

Q. 4. Can wind energy production be taxed to pay for local needs like schools, roads and EMT, and still be highly profitable to investors?

A. Yes. Minnesota levies a **Production Tax** on energy produced, which is all returned locally for use by counties, townships, municipalities and school districts. In Pipestone County, Minnesota, for example, one hundred percent of the Production Tax revenues go to local government - cities, counties, townships and school districts.

The tax is collected by the State Treasurer and distributed by a format which matches the levy by the various government entities. An average township, or small town, has a levy of around \$35K. Pipestone County receives \$400K, or 10% of the entire levy. That amount represents about 20% of the county budget. There is NO levy shared with a county or township that does not have wind power. For property tax purposes, all turbines are treated as a residence. The state gets no part of the tax, but it was noted that to the extent school districts benefit, state responsibilities toward the districts are lessened. Wind production remains highly profitable, despite the production tax, and local citizens welcome the developments because they realize the benefit to their roads, schools and institutions.

Kansas does **not** have such a production tax, nor does it levy a property tax on energy generating facilities. Minnesota taxes wind production, like our old oil and gas taxes, by the Kwh - at \$.0012 per Kwh (less than 1 cent). They switched from a previous system of Payment In Lieu Of Taxes (PILOT) in order to create a sense of consistency and stability for all parties concerned. They also return all production tax dollars to local entities.

Here are the comparable figures for Kansas turbine sites, all Payments In Lieu Of Taxes:

- Gray County, Montezuma 112.2MW installed: \$330,000 payment/year or \$2,941 per MW installed (unknown number of years for ann. payments).*
- Ford County, Spearville 100.5MW installed, \$496,333 payment/year or \$4,494 per MW installed (30 years of ann. payments negotiated). *
- Butler County, Elk River 150 MW installed, \$150,000 payment/year or \$1,000 per MW installed (15 years of ann. payments negotiated) *

You can see there is considerable discrepancy under the present system in Kansas. Maybe some County Commissioners are better negotiators than others. If the Minnesota Production Tax were applied to these Kansas wind farms, and using a .40 capacity factor - generating 40% of the time; MN uses .28 capacity factor,

**Above information taken from news articles so there may be some discrepancies (Spearville - Hutch News June 10, 2006; Elk River – El Dorado Times July 3, 2006, Montezuma - Windustry fact sheet, 10/21/05).*

Q. 5. Do you believe Kansas should have a Renewable Portfolio Standard? Why or why not?

A. Renewable Portfolio Standards (RPS) are also called Renewable Electricity Standards (RES). An RPS requires electric utilities to gradually increase the amount of renewable energy resources - such as wind, solar and bioenergy in their electricity supplies. (*Source: www.ucsusa.org (Union of Concerned Scientists)*)

A RPS is a public policy tool that would make utilities take into account the long term effects of their decisions on the environment, human health and local economies. It requires them to decrease their dependence on fossil fuels by increasing their reliance on renewables. A RPS indicates that legislators have found good public policy may require consideration of issues other than the short-term profitability of utilities. A well-planned RPS should not hamper production and delivery of consistent, high quality electrical energy.

***Renewable Portfolio Standards.** Twenty-two states and the District of Columbia have set standards specifying that electric utilities generate a certain amount of electricity

from renewable sources. Most of these requirements take the form of “renewable portfolio standards,” or RPS, which require a certain percentage of a utility’s power plant capacity or generation to come from renewable sources by a given date. The standards range from modest to ambitious, and definitions of renewable energy vary. Though climate change may not be the prime motivation behind some of these standards, the use of renewable energy does deliver significant Green House Gases (GHG) reduction. For instance, Texas is expected to avoid 3.3 million tons of CO2 emissions annually with its RPS, which requires 2000 MW of new renewable generation by 2009. Increasing a state’s use of renewable energy brings other benefits as well, including job creation, energy security, and cleaner air.

Some of these efforts have been particularly successful. For example, Connecticut increased its RPS in 2003, extending the standard to all utilities in the state; Iowa met its standard in 1999. Many states allow utilities to comply with the RPS through tradable renewable energy credits. While the success of state efforts to increase renewable energy production will depend in part on federal policies such as production tax credits, states have shown their considerable efficacy in encouraging clean energy generation.

*(Source: Pew Center for Global Climate Change
http://www.pewclimate.org/what_s_being_done/in_the_states/rps.cfm)*

Q. 6. Can the ownership of wind turbines (local owners vs outside investors) make any difference to the local economy?

A. Studies have consistently shown that while merely leasing the land under a turbine can provide the landowner lease payments of between \$2,000 and \$5,000 (with Kansas at the extreme low end of that scale), this pales in comparison to that which a farmer might earn if he or she owned the turbine itself. According to the General Accounting Office, ownership can double or even triple the landowner’s income, plus they will purchase services locally, and spend the income locally. Other studies have shown that locally owned wind generation creates about 10 times more economic activity in the local community and state.

(Source: Studies cited in Small Packages, Big Benefits: Economic Advantages of Local Wind Projects, Teresa Walsh, April 2005, The Iowa Policy Project.)

Q. 7. Do you know whether Kansas is actively pursuing renewable sources of electrical energy or more coal-generated energy? Do you agree with the path we are taking?

A. There is little renewable electrical energy generation in Kansas. Kansas’ utilities are most interested in vastly increasing energy production based on imported coal. Sunflower is proposing two 600 MW plants in Holcomb, with the energy being sold into Colorado. Westar is proposing one 600 MW plant somewhere in East Central Kansas,

plus 2 natural gas burning units of 150-200 MW. KCPL is proposing a 900 MW plant on the Missouri River plus 100 MW of wind. And the Kansas City Kansas Board of Public Utilities is proposing another coal-fired plant. In addition, the Goodland Energy Center is proposing a combined ethanol, biodiesel and 25 MW coal plant.

Nationwide, the U.S. Department of Energy (DOE) has announced that 153 new coal-fired plants and 93 gigawatts of capacity are expected to be built by 2025. Worldwide there are approximately 850 new coal powered plants on the drawing boards.

Q. 8. Are you aware of how wind energy compares with traditional forms of energy in terms of consumption of resources?

A. Once installed wind turbines use only the resources necessary for their maintenance. The “fuel” is the free wind, an abundant natural resource in Kansas.

- To generate the same amount of electricity as a single 1-megawatt (MW) wind turbine, a traditional fossil fuel or nuclear power plant requires, on average, withdrawing about 60 million gallons of water per year from a stream or river. Wind turbines do not use water. The planned Sunflower plants in Holcomb will use about *eight billion* gallons of water a year.

- To generate the same amount of electricity as today’s U.S. wind turbine fleet (6,740 MW) would require burning 9 million tons of coal (a line of 10-ton trucks 3,437 miles long, from Seattle to Miami) or 28 million barrels of oil each year. Wind turbines do not burn coal or oil.

(Source: <http://www.ifnotwind.org/research/research-facts-and-stats.shtml>)

Q. 9. Do you understand the differing health impacts from wind-generated energy vs. coal?

A. Wind energy does not pollute. Coal fired energy has serious pollution issues with human health consequences which are not assessed against the cost of production. The 440 coal-fired plants in the U.S. produce about 48 tons of mercury per year. The planned Sunflower coal-fired plants will boost toxic mercury production by 60 percent over present levels.

In addition, traditional coal-fired plants are major producer of smog producing nitrogen oxide (NO_x), Sulphur dioxide (SO₂) which produces acid rain, and millions of tons of Carbon Dioxide (CO₂) which is a major contributor to global warming.

Interestingly, as a global consensus has developed on addressing the causes of global warming, utility response has been a rush to break ground on new coal fired plants, (a major contributor to global warming). It is thought that this rush is being undertaken in

order to grandfather the coal plants in under existing the existing regulatory regime which allows the health and pollution costs to be externalized onto society at large, rather than treated as a cost of production.

Texas is also a targeted by utilities for many new coal plants. Proposals to build 17 new coal plants there, helped to initiate the creation of a legal team sponsored by several Texas cities, including Dallas and Houston, that will fight the development of these plants for clean air reasons.

Q. 10. What is the least expensive option Kansas could take to greatly decrease our reliance on imported fossil fuels?

A. The answer is - increasing the efficiency of our energy use.

According to the Rocky Mountain Institute: “Americans can still cost-effectively save half the electricity they use—even the Electric Power Research Institute (EPRI), the utilities’ own think-tank, says so—and at least that much of the oil and gas. Achieving these technical potentials, or the even larger ones researchers at Rocky Mountain Institute have identified, would take several decades, but pursuing them is clearly worthwhile. The energy savings already achieved have cut Americans’ energy bills by more than \$200 billion a year, compared to what they’d collectively be spending if they used energy in the same wasteful ways they did in 1973. Yet if they were as energy-efficient as some of their Asian and European competitors, they’d save an additional \$200 billion a year. (And even the Asians and Europeans have plenty of room for improvement.)”

The Natural Resources Defense Council says: “The fastest, cleanest, and cheapest way for America to address its growing energy demand is through energy efficiency -- getting more productivity using less energy. Thanks to readily available technology for improving heating and cooling systems in buildings and increasing the efficiency of everyday appliances, America can make dramatic cuts in energy use without sacrificing comfort or profitability. Indeed, the economic benefits of investing in efficiency measures typically outweigh costs by a ratio of two to one. And the good news is that we can reap these benefits faster than by building new power plants.

Thank you for reading the above! If you want to learn more about Wind Energy, consider attending the Kansas Community Wind Energy Workshop on October 31 at Cloud County Community College (CCCC) in Concordia. The Kansas Rural Center, Kansas Farm Bureau, Kansas Farmers Union, CCCC, and the Kansas Energy Office sponsor this one-day workshop. For more information, see the KRC website at www.kansasruralcenter.org and click on calendar/announcements.