

# Stretching or Ignoring Facts and Making Unwarranted Assumptions when Attempting to Justify Wind Energy

Attempts in Kansas to justify wind energy illustrate the challenge facing many government officials and illustrate the risks facing taxpayers and electric customers

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## **Stretching or Ignoring Facts and Making Unwarranted Assumptions when Attempting to Justify Wind Energy**

Attempts in Kansas to justify wind energy illustrate the challenge facing many government officials and illustrate the risks facing taxpayers and electric customers

### **Introduction**

Wind energy developers, lobbyists, and other advocates are continuing to push federal and state political leaders and regulators to provide even more tax breaks and subsidies for wind energy, and to force local and state officials to override the growing citizen opposition to the construction of controversial “wind farms.” Some politicians appear sympathetic to the wind industry objectives, despite citizen opposition.

The growing citizen opposition to the construction of huge wind turbines is based on a wide variety of economic, energy, environmental, and ecological issues – ranging from economic cost and wealth transfer to electric grid impact, noise, bird and bat kills, impact on scenic vistas and neighbors property values. This paper focuses primarily on the economic and energy system issues and the challenges facing political leaders and regulators as they consider wind energy.

Discussions of wind energy now underway in Kansas are used in this paper to illustrate the issues and challenges facing both government officials and citizens.

### **A. Summary**

Like many state and local governments, officials in Kansas have been trying to square “popular wisdom” about the merits of wind energy with the actual facts about wind energy. In Kansas, the Governor’s Kansas Energy Council (KEC) recently issued for public comment proposed recommendations dealing with wind energy.<sup>1</sup> The proposed recommendations are a part of the KEC’s efforts to develop a new Kansas Energy Plan.

The Kansas Corporation Commission (KCC) has released a cost-benefit analysis prepared for the KEC by the Economics Staff of the KCC. The KCC staff analysis is in response to a “challenge” by the Governor “to have 1,000 megawatts of renewable energy capacity installed in Kansas by 2015.”<sup>2</sup> As a result of its analysis, the KCC staff concluded that “**meeting the [Governor’s] Challenge is likely to result in utilities having comparatively higher revenue requirements and, consequently higher rates**”<sup>3</sup> (emphasis in original). This conclusion is important because the KCC staff reached it without considering the full, true costs of electricity from wind energy.

The story doesn’t stop there. Faced with the challenge from the Governor, the KCC has considered a KEC proposal to add an arbitrarily assigned “external” cost to electricity generated

from other energy sources so as to make electricity from wind *appear* cost effective. Similar approaches have been tried elsewhere and found unjustifiable.

When all the environmental, economic and energy facts about wind energy are considered objectively, it becomes very clear that wind energy is very costly. Building so-called “wind farms” or smaller wind energy facilities inevitably produces high costs and “winners” and “losers.”

The *big winners* are wind farm owners. The landowners who lease land for wind turbines “win” in a small way because they receive some additional income.

The *big “losers”* are electric customers and taxpayers who, together, bear the full true costs of electricity from wind energy. Other “losers” are those, including the landowners’ neighbors and all who are adversely affected by the environmental, ecological, scenic, and property value impact of huge wind turbines.

This paper:

- Lists key reasons why political leaders and regulators are facing problems when attempting to deal with wind energy.
- Provides more information on the effort in Kansas to evaluate wind energy.
- Identifies facts about wind energy that are often not taken into account by political leaders and regulators.
- Comments on the efforts in Kansas to promote greater use of wind energy.
- Outlines lessons for all government officials that can be learned from the efforts in Kansas.

**B. Key reasons why political leaders and regulators are facing problems when attempting to deal with wind energy**

Political leaders and regulators in several states are continuing to look at wind energy as a potential way to supplement the current supply of electricity. Also, many local officials are dealing with controversial proposals to construct huge wind turbines in their areas. All of these officials face difficult problems when trying to protect the public interest when they must deal with the claims and demands of the wind industry and other wind energy advocates because:

- Many in the public, media and government, including political leaders and regulators, do not yet have an accurate understanding of the full true environmental and economic costs and benefits of wind energy.
- Citizens and officials are confronted by a “popular wisdom” favorable to wind energy that has been created by wind energy advocates who have greatly overstated the energy and environmental benefits of wind energy and understated environmental, energy and economic costs. Many believe, incorrectly, that wind is a free “energy resource” and that the production of electricity from wind is environmentally benign.

- Federal and state governments, often acting on the basis of false and misleading information about wind energy have enacted huge tax breaks and subsidies and have adopted other policies highly favorable to the wind industry.
- *Tax avoidance -- not energy or environmental objectives -- has become the primary reason for building “wind farms.”* The tax breaks and subsidies have proven highly attractive to some large corporations with large amounts of income to shelter from federal and state taxes. These organizations are formidable because they have considerable resources at their command to lobby for both existing and new tax breaks and subsidies and to pressure local officials to approve controversial projects that are opposed by citizens.

During the past three years, progress has been made – often by citizen-led groups – to discern and distribute the facts about the true costs and benefits of wind energy. This information is gradually making its way into the media. However, many federal and state officials (political leaders and regulators) have been slow to grasp these facts and take them into account. Instead, they still appear reluctant to go against “popular wisdom” or the wishes of wind industry lobbyists even though facts clearly demonstrate that existing wind energy policies, tax breaks and subsidies result in:

- The transfer of millions of dollars annually from the pockets of ordinary taxpayers and electric customers principally to a relatively few “wind farm” owning corporations, and
- Billions of capital investment dollars devoted to energy projects (“wind farms”) that produce very little electricity – which electricity is high in cost and low in value because it is intermittent, volatile, unreliable and most likely to be available when least needed.

**C. Activities underway in Kansas illustrate the problems associated with attempts to force greater use of wind energy.**

In 2004, the Kansas Energy Council, appointed by the Governor, recommended the adoption of a number of new state policies, tax breaks and subsidies to promote more wind energy facilities.<sup>4</sup> Many of the proposals were considered by the state legislature but most were not adopted.

A newly constituted Kansas Energy Council (KEC) was appointed by the Governor and the staff of the Kansas Corporation Commission was assigned to provide staff work for the KEC. “In her January 2005 letter to the Chair of the KCC, Governor Sebelius outlines a goal of having: ‘1,000MW of renewable energy capacity installed in Kansas by 2015.’ The Governor then asks the KCC to: ‘look at the full range of benefits that renewable energy brings to Kansas and how those relate to additional investments that may be needed to meet...that goal.’”<sup>5</sup>

The KCC Staff interpreted the January letter as an instruction to “Perform a benefit cost test of the stated goal. Derive the economic implications of meeting the challenge of having 1,000MW of renewable capacity installed by 2015.”<sup>6</sup> The KCC Staff then concluded that, among potential “renewable” sources of energy to produce electricity “...investment in wind capacity has the greatest likelihood of being economical” and examined that possibility.<sup>7</sup> Therefore, the KCC staff focused its *cost benefit analysis* on the impact of adding more wind capacity.

In August 2006, the KEC approved and published for public comment the following proposal in its Energy Plan Draft--Chapter 5--Wind energy development:

“Enact legislation that would grant the Kansas Corporation Commission the authority to consider possible external costs and benefits, in addition to known and measurable costs, when evaluating wind-based purchase power agreements submitted by jurisdictional utilities for approval. This legislation would enable the KCC to approve, subject to certain limitations, up to a total of 200 MW worth of new contracted wind capacity, with up to half of the allowed total dedicated to contracts with Community Wind developers. This legislation applies only if the federal Production Tax Credit (PTC) is in place.”

It is clear from the document issued for comment by the KEC and from other documents released by the KEC and KCC in response to a Kansas Open Records Act (KORA) request that:

- The net present value (NPV) analysis conducted by the KCC economics staff demonstrated that wind energy was not cost effective and would result in higher electricity bills for Kansans, and
- Only if the KCC were clearly authorized in law to adopt some arbitrarily determined monetary value for so-called “external costs” (generally referred to as “externalities”) that, in effect, are not known or measurable could the KCC conclude that electricity from wind might be cost effective.

Similar proposals to consider “externalities” have been considered in other states and have generally been abandoned as unrealistic and unworkable. Several years ago, an expensive effort that attempted to quantify “externalities” associated with various energy sources was undertaken by the US Department of Energy (DOE) and was found to be impractical and was abandoned.

Such proposals continue to be advanced from time to time by individuals or groups favoring some particular energy source. Typically, the group favoring a particular energy source seeks to assign arbitrarily some high external benefit to the resource it favors and/or some high external cost to competing energy resources – all with the objective of justifying the choice they prefer.

In the Kansas case, it appears that the advocates of considering possible “external” costs wish to assume, falsely, that there are no such “external” costs associated with wind energy but that there are significant “external” costs associated with electricity from coal or, possibly, natural gas. Apparently, advocates of the proposal on the KEC believe they could justify the higher cost of electricity from wind if they could assign an “external” cost of some \$0.02 per kilowatt-hour (kWh) to coal-fired electricity.

Even though the KCC cost-benefit analysis did not take into account the full, true costs of wind energy, its analysis demonstrated quite clearly that greater reliance on wind energy in Kansas would result in higher monthly electricity bills for the people of Kansas. If the full, true costs of wind energy had been taken into account the KCC staff conclusions would be even more obvious. Some of these additional cost factors are discussed below.

**D. Facts about wind energy that are often ignored by federal, state and local officials when considering wind energy policies or facilities**

Documents released by Kansas officials show that important issues surrounding wind energy have not been considered by the Kansas Energy Commission. Also, as indicated above, not all of the true costs of electricity from wind are reflected in the KCC Staff's cost-benefit analysis and/or the "qualitatively" comments that accompanied the analysis.<sup>8</sup>

But, Kansas officials are not alone. Listed and described below are some of the critically important but often overlooked issues and facts that should be taken into account by officials at all levels of government if they wish to assure reliable electric service while protecting the interests of citizens, consumers and taxpayers.

1. **Electricity produced by wind turbines is lower in quality and value than electricity produced from reliable generating units.** Electricity demand varies widely, often on a minute to minute basis and always by the hour of the day, day of the week and season of the year. Since significant amounts of electricity cannot be stored economically, a reliable supply of electricity is dependent on an electric grid that is managed so that supply keeps up with demand (and so that voltage and frequency are kept in balance).

This means that grid managers must have generating *capacity* available that can be increased or decreased momentarily to adjust to overall demand for electricity. Generating capacity that can be counted on *whenever needed* is commonly referred to as "dispatchable" capacity.

Wind turbines present a problem because they produce electricity only when the wind is blowing in the right speed range. Depending on the turbine, they may be able to start producing electricity when wind speeds reach about 6 miles per hour (mph), reach rated capacity around 33 mph and cut out around 55 mph. Therefore, their output is intermittent, volatile and unreliable.

Because the electricity produced by wind turbines can't be counted on when needed, that electricity is lower in quality and value than electricity from reliable ("dispatchable") generating units.

The KCC Staff's benefit-cost analysis appears to assume that the kWh produced by wind and by dispatchable generating units have equal value. If so, this is one of the significant biases in favor of electricity from wind that has been incorporated in the analysis.

2. **Building wind turbines will not replace the need for building reliable, dispatchable generating capacity.** An electric system is fully reliable only if enough electricity is available at all times, including when electricity demand reaches its highest, or "peak" levels. In most areas of the US, peak electricity demand occurs on hot, weekday summer afternoons when air conditioning requirements and industrial and commercial electricity requirements are at their highest levels.

Unfortunately, in most areas of the US, hot summer afternoons are the times when the output from wind turbines is least likely to be available. Instead, the output is more likely to be available at night and in fall, winter and spring months when winds tend to be strongest but when electricity demand tends to be less than during summer months.

Despite arbitrary assumptions made by some grid management organizations, wind turbines have little, if any, “capacity value” as that term is used in the electric industry. That is, they cannot be counted on to produce electricity when demand is at peak levels.

A study released recently by the Sierra Club of Kansas revealed that Kansas does have strong winds during some of the same summer days and hourly periods when electricity demand is high. However, the critical issue is whether wind turbine output can always be counted on during those hours and minutes when electricity demand reaches its peaks. The Sierra Club study does not and could not make this case for wind turbines. *The simple fact is that dispatchable generating capacity will still have to be constructed to serve areas where electricity demand increases or where existing generating capacity must be replaced.*

Events in California in July 2006 provided a dramatic demonstration of how little grid managers can count on wind turbines for electric during periods of high electricity demand. The President and CEO of the California Independent System Operator (CA ISO), when testifying on August 9, 2006, before a State Senate Committee pointed out that, “The contribution of the wind resources at the time of peak was less than 5% of total wind installed capacity.”<sup>9</sup>

Government officials in Kansas may want to note that officials and electric utility staff in other states (e.g., Texas) and other countries (e.g., Germany) have become very aware that increases in wind capacity increases the need for reliable, dispatchable generating capacity to assure that electricity will be available when needed.<sup>10</sup>

3. **Published information on the cost of electricity from wind per kWh generally is not valid or reliable.** Such estimates, particularly if they originate with wind energy advocates, are typically based on highly optimistic assumptions. Such assumptions include capital costs, costs of operations, maintenance, repair and replacement, cost of leasing land for turbines, costs of deactivation and land restoration, and, importantly, the amount of electricity that may be produced (often expressed as the “capacity factor”<sup>11</sup>).

Graphs and other materials showing electricity costs per kWh appearing on web sites, in media, often from the American Wind Energy Association (AWEA),<sup>12</sup> or DOE-EERE and NREL<sup>13</sup> can not be accepted as valid for the reasons described below.

Capital costs of wind turbines apparently have increased rapidly. The KCC staff initially assumed that capital costs average \$1,600 per MW of wind turbine capacity – based on the published cost of a recently completed “wind farm” in Kansas. However, the KCC staff found later evidence that the current capital cost is around \$1,700 per MW.<sup>14</sup>

In fact, other variables used in estimating the costs of electricity from wind turbines are based on assumptions (i.e., guesses) because none of the 1 to 1.5 MW turbines now being installed in the US have been in operation long enough to know critical facts such as their useful life, the cost of operating, maintaining, repair or replacing the turbines during their assumed useful life, the amount of electricity that will be produced, or the extent that performance (output) deteriorates as the turbines age.

For example, wind energy advocates often assume that the useful life of the turbines will be 20 or 30 years. If an estimate of electricity cost per kWh were based on an assumed useful life of 20 years but, in fact, the useful life turned out to be 10 years, the actual cost per kWh would be approximately double the estimated per kWh cost that was based on an assumed 20-year useful life.

Further, the fact that all tax breaks are captured by the original owner of a commercial wind turbine during the first 10 years of a turbine's operation (10 years for the Production Tax Credit and 6 tax years for the depreciation deduction) may increase an owner's incentive to sell or abandon the turbine after 10 years and/or to avoid spending money to maintain, repair or replace wind turbine parts necessary to maintain performance and output.

Also, data on the actual amount of electricity produced by wind turbines installed in the US – as reported by the US Energy Information Administration (EIA)<sup>15</sup> is significantly less than is usually assumed by wind energy promoters – further increasing the actual cost per kWh (because there are fewer kWh to use in the denominator when calculating cost per kWh).

4. **True costs of electricity from wind are much higher than often admitted because important elements of cost are ignored.** Fortunately, the KCC cost-benefit analysis takes into account numerically – or in supplemental qualitative comments – many of the true costs of electricity from wind. This is not true of many analyses. In fact, the true cost of electricity from wind that is borne by electric customers and taxpayers is much higher than wind advocates admit. Among the costs that are ignored in many analyses but which are in one way or another passed along to electric customers and/or taxpayers are the following:
  - a. **Federal and state tax breaks for wind energy are part of the true cost of electricity from wind.** These tax breaks benefit of “wind farm” owners by reducing their income taxes and shifting that tax burden to remaining taxpayers.
    - 1) **Two very generous tax breaks are available from the federal government,** according to wind industry officials, alone account for as much as two-thirds of the economic value of a “wind farm” project.<sup>16</sup> Because of these tax breaks, the FPL Group apparently paid NO federal income taxes in 2002 or 2003 while reporting net income of more than \$2 billion.<sup>17</sup> The two federal tax breaks are:
      - **The wind Production Tax Credit (PTC) of \$0.019 per kWh for electricity produced during the first ten years of a wind facility's operation.** That rate, which is subject to adjustment for inflation will soon rise to \$0.020 per kWh. If the 112 MW Gray County, Kansas, “wind farm” owned by FPL



- c. **Adding transmission capacity to serve “wind farms” adds to customer costs.** Electricity from wind turbines tends to make inefficient use of transmission capacity. Enough transmission capacity must be available to meet the full rated capacity of the wind turbines but that capacity is seldom used fully because of the intermittent and volatile output of wind turbines. Thus the unit cost of transmitting the electricity from wind turbines tends to be high.

Several states, particularly Texas, have learned that their transmission capacity was not adequate to handle the electricity from wind turbines, which are often located at a significant distance from where electricity is needed. Also, moving electricity over long distances results in significant “line loss” so that less of the electricity actually becomes available to electric customers.

The full cost of adding transmission capacity to serve wind turbines should be considered a part of the true cost of wind energy. However, in response to wind industry pressure, some states (e.g., Texas, Minnesota) have permitted utilities to add transmission capacity to serve “wind farm” output and include the costs in their rate base, thus passing along the costs to all the utilities customers. In effect, such actions provide still another hidden subsidy for wind energy.

5. **Local economic benefits of “wind farms” are generally exaggerated.** Wind energy advocates have consistently overstated the local economic benefits of “wind farms.” In fact, most jobs during construction (which may be completed in 6 months or less), particularly the higher paying jobs, are usually filled by people who come to the area for short periods of time to assemble towers, turbines, and associated electronics and to build substations and transmission lines necessary to connect wind turbines to the electric grid. There are few permanent jobs.<sup>23</sup> Increased business for hotels and restaurants is short lived.

The wind industry claims that rental payments have a positive local economic impact but that would be true only if the income from those payments were spent or invested locally.

An “economic model” financed at taxpayer expense by DOE’s National Renewable Energy “Laboratory” (NREL) and prepared by a wind energy advocate substantially overstates the favorable local and state economic impacts.<sup>24</sup>

6. **Environmental benefits of wind energy are typically overstated.** It has long been clear that the wind industry has overstated the potential environmental benefits of getting electricity from wind. For example, wind advocates assume that each kWh of electricity produced by a wind turbine offset emissions associated with a kWh of electricity produced by a fossil-fueled generating unit. This is not true for several reason, including the fact that other generating units, often fossil-fueled, must be kept running in a backup role (below their full efficiency) or in spinning reserve to balance the intermittent, volatile and unreliable output from wind turbines. These backup and spinning reserve units continue to emit.

Furthermore, there is a crucial difference between “displacing” emissions and avoiding emissions. Under extant “cap and trade” systems, such as those in effect for sulfur dioxide

(SO<sup>2</sup>), those emissions from a fossil-fueled unit that might be *displaced* are not actually *avoided* because the owner of the fossil-fueled unit will be able to sell the emission right or use it elsewhere. Therefore, there would be no reduction in SO<sup>2</sup> emissions.<sup>25</sup>

7. **Wind Energy Advocates try to ignore adverse environmental, ecological, scenic and property value impacts of “wind farms.”** Wind industry officials and other wind energy advocates typically play down or ignore the fact that wind turbines impose a variety of adverse environmental, ecological, scenic and property value impacts. This whole topic is far too extensive to treat in this brief paper but evidence of the adverse impacts can be found on numerous web sites that have been established in the US and other countries where citizens are concerned about existing or proposed wind energy projects. Two US sites are:

- Industrial Wind Action Group, <http://www.windaction.org/>
- National Wind Watch, <http://www.wind-watch.org/>

These sites, as well as dozens of others that are linked, provide detailed information on a wide variety of adverse impacts including noise, scenic and property value degradation, killing of birds and bats, safety and other issues.

#### **E. Additional Comments on Kansas wind energy evaluation activities**

The attempts in Kansas to force more wind into the state’s energy mix raise a number of other issues, including those mentioned below, that deserve comment and that should be noted by other government officials.

1. **The Governor’s Charge to the KCC.** Unfortunately, the Governor’s charge to the KCC (quoted earlier) suggests that the Governor had already reached a conclusion that increasing wind or other renewable generating capacity is desirable – a conclusion that the KCC staff could not support with its cost-benefit analysis. Perhaps it was the Governor’s charge that stimulated the unrealistic proposal to add an arbitrarily assigned “external” cost to other energy sources so that electricity from wind might appear to be justifiable.

While assumptions that “drive” the KCC cost-benefit analysis appear to have a wind bias,<sup>26</sup> the KCC Staff has done a credible job in its analysis and narrative description<sup>27</sup> of the potential for wind energy in Kansas, particularly recognizing that their work was in response to the Governor’s “challenge” and that the KEC apparently includes industry lobbyists and other strong advocates for wind energy that want the KCC to support their views.

2. **Makeup of the KEC may not give adequate protection of taxpayer and electric customer interests.** It seems clear from the membership<sup>28</sup> and the minutes of the KEC meetings,<sup>29</sup> and from other documents released by the KCC that lobbyists favoring wind energy have often had unusually good opportunities to press their viewpoints on the KCC and KEC staff. It is not clear that the interests of electric customers and taxpayers – who ultimately bear the high cost and adverse impacts of wind energy -- have had an equal opportunity to protect their interests.

3. **Is wind really a valuable “Energy Resource” for Kansas.** A paper prepared for the KEC by a wind energy consultant and advocate asserts that, “Kansas has very substantial wind energy resources. Sound development policies can, in time, make wind one of our best economic assets.”<sup>30</sup> This conclusion is not necessarily true.

There is no question that Kansas experiences a lot of wind. However, it is far from clear that wind can be an economically viable and environmentally acceptable “energy resource” or that wind can prove to be one of Kansas’ “best economic assets.” In physical terms, the US has large quantities of a wide variety of theoretically available energy resources (including natural gas, oil, oil shale, coal, wood, biomass, waste, tides, etc.). However, many of these “resources” cannot be developed with currently available technology at an economic cost or with environmental impacts that are now considered acceptable. When all the true costs and adverse impacts are fully considered, wind may never prove to be an economically viable and environmentally acceptable asset for use in generating electricity.

4. **Do “community wind” projects make sense for electric customers and taxpayers?** Government officials in Kansas, including some in local governments have shown considerable interest in “community wind” projects. Apparently, the KEC in November 2005 defined “community wind” as follows

*“Community Wind is locally owned commercial wind energy projects (smaller than or equal to 20 MW rated capacity) with production distributed for local use or sold under a power purchase agreement (PPA). The majority of owners/investors are members of a local community and they have a financial stake in the project coupled with a commitment to see direct positive local social and economic impacts.”<sup>31</sup>*

The potential interest in “community wind” projects is difficult to understand for several reasons. Specifically,

- Community wind projects are expected to have higher costs, “perhaps 10 – 15 percent because of their dispersed nature and reduced economy of scale.”<sup>32</sup>
- Large wind projects, which are expected to have lower costs than community wind projects, have already been found by the KCC Staff to threaten higher costs for electric customers.
- Wind energy development, as explained earlier, produces “winners” and “losers,” with project owners being the *big winners*, those leasing land for turbines being *small winners*, and those who bear the costs – electric customers and, if tax breaks and subsidies are involved, taxpayers are the *big losers*.
- The expected higher cost of electricity produced by community wind projects would appear to shift even higher costs to electric customers and/or taxpayers.

Certainly, those who are truly dedicated to the protection of the interests of electric customers and taxpayers should have a prominent role in decisions on any “community wind” project. It appears that those who have an owners or investor stake in such a project may profit significantly at the expense of their neighbors.

- 5. Insidious effects of “Renewable Portfolio Standards” (RPS).** While enthusiasm seems to have dampened and concerns about RPS have grown, some twenty states have adopted some form of a voluntary or mandatory “Renewable Portfolio Standard.” KEC minutes and documents released by the KCC make clear that the KEC and KCC are being lobbied to recommend adoption of some kind of RPS in Kansas.

Typically, a key aspect of an RPS is that electric utilities (or, possibly, electricity users) are required or encouraged to obtain some specified portion (usually a percentage) of their electricity from “renewable” energy. “Renewable” energy is defined differently in various states, but generally includes solar, wind, some biomass, and geothermal energy and may include hydropower in some states (e.g., New York).

The wind industry and other wind energy advocates have lobbied strenuously for adoption of state and a national *mandatory* Renewable Portfolio Standards for quite obvious reasons. That is, they recognize that electricity from wind is high in cost (even without considering its adverse environmental impacts) and could not compete with electricity from other sources unless very heavily subsidized by taxpayers and/or electric customers. A mandatory RPS, in effect, guarantees that a “market” will be available for the high cost electricity from renewables – with the higher-than-market costs passed through to electric customers in monthly bills.

If wind lobbyists cannot secure a mandatory RPS they are often willing to settle for a voluntary RPS, perhaps because they see it as a step towards a mandatory RPS or because they believe (quite correctly) that a voluntary RPS adds political and/or public relations pressure on utilities (and some large end users) to buy high cost electricity from wind.

Renewable Portfolio Standards are sometimes defended by their advocates as merely assuring that a source of electricity from “renewable” energy sources will be available for those electric customers who are willing to pay a premium price to be able to claim that their electricity comes from a renewable source. In fact, over a hundred electric utilities have adopted programs – either voluntary or because of political pressure or state requirements – that make it possible for electric customers to elect to pay such a premium price.

In fact, however, very few electric customers (well under 1% but with higher percentages in a very few utilities) have elected to pay a premium price for electricity that, in theory, is produced from renewable sources. The revenue received from such programs is not enough to pay for the higher cost electricity and the cost of administering the program (e.g., staff salaries, promotional programs, materials, and advertising). RPS programs are correctly described as insidious because the any costs that are not recovered through the premium payments are passed along to all of the utilities’ customers. While the total cost of RPS programs are significant, the extra cost hitting each customers’ monthly bill may be relatively small and thus less likely to be noticed by customers.

Once again, anyone who wishes to protect the interest of electric customers should have a strong role in the evaluation of proposals to adopt any form of an RPS. Development of such programs should not be left to lobbyists and other renewable energy advocates.

**F. Lessons for all government officials faced with wind energy issues.**

Clearly, government officials in Kansas certainly are not the only ones who are being confronted by the controversial matter of wind energy, by aggressive wind industry lobbyists with substantial resources at their command, and with proposed “wind farms” that are opposed strongly by citizens for a wide variety of energy, economic and environmental reasons.

The facts uncovered by citizen groups during the past three years and the work being done on wind energy in Kansas that is discussed above does provide the basis for several “lessons” for other federal, state and local government officials. For example:

1. Points made by the Staff of the Kansas Corporation Commission (KCC) about the unfavorable economics and higher cost of electricity from wind are likely to be applicable in other states and jurisdictions.
2. Much of the information about wind energy that has been made widely available by the wind industry and other wind energy advocates is not objective but, instead, is highly biased in favor of wind. All too often, this includes information prepared, funded and/or distributed – at taxpayer expense – by the US Department of Energy’s Office of Energy Efficiency and Renewable Energy (DOE-EERE) and DOE’s National Renewable Energy “Laboratory” (NREL).
3. “Studies” and “analyses” prepared by individuals and organizations with a long history of doing work for promoters of wind energy should be evaluated carefully. During the past 15 years tens of millions of dollars (often tax dollars) have been spent by the wind industry, DOE-EERE, and NREL and the wind industry for “studies” and “analyses” of wind energy. All too often, it appears that such work is assigned to individuals and organizations that can be counted on to produce results and conclusions that fit the preconceived notions of the officials controlling the money and awarding the contract or grant.
4. Predictions that costs of electricity from wind will decrease should not be believed. Promoters of wind energy have long claimed that the cost of electricity from wind has decreased dramatically and will continue to decrease. Graphs showing this are found in DOE-EERE, NREL and industry documents and have often been used unwittingly in the media. Unfortunately, these predictions:
  - Are based on assumptions that cannot be justified.
  - Do not take into account all the true costs of wind energy, and
  - Have already been proven to underestimate the costs that are considered.

The capital cost of wind turbines and, therefore, the cost per kWh of electricity from wind, have increased substantially during the past two years.

5. Government officials who are truly interested in serving the public interest must find ways to resist pressure from wind industry lobbyists and avoid assuming that the information they provide is objective. This task is proving increasingly difficult because of the involvement

in wind energy by several large financial and energy organizations that are now capitalizing on the huge tax breaks and subsidies for wind energy and that have substantial resources that can be devoted to lobbying government officials at all levels. It is very clear that government officials who have adopted recommendations of wind energy promoters have created existing policies, tax breaks and subsidies that are now:

- a. Transferring millions of dollars annually from the pockets of ordinary taxpayers and electric customers principally to a relatively few “wind farm” owning corporations, and
- b.** Misdirecting billions of capital investment dollars to energy projects (“wind farms”) that produce very little electricity – which electricity is high in cost and low in value because it is intermittent, volatile, unreliable and most likely to be available when least needed.

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### About the Author

GLENN R. SCHLEEDE is semi-retired after working on energy and related matters in government and the private sector for over 30 years. He now devotes a large share of his time to *self-financed* analysis and writing about (a) government policies and programs that are detrimental to consumers and taxpayers, and (b) government or private sector activities that are presented to the media, public and government officials in a false or misleading way.

From 1992 until September 2003, Schleede maintained a consulting practice, Energy Market and Policy Analysis, Inc. (EMPA), providing analysis of energy markets and policies. During that time he worked primarily on natural gas and electricity issues.

Prior to forming EMPA, Schleede was Vice President of New England Electric System (NEES), Westborough, MA, and President of its fuels subsidiary, New England Energy Incorporated. His time with NEES included responsibilities for procurement and transportation of coal, natural gas and oil for NEES facilities, NEEI's oil and gas exploration and coal shipping ventures, and NEES economic planning and budgeting functions.

Previously, Schleede was Executive Associate Director of the U.S. Office of Management and Budget (1981), Senior VP of the National Coal Association in Washington (1977-1981) and Associate Director (Energy and Science) of the White House Domestic Council (1973-1977). He also held career service positions in the U.S. OMB and the U.S. Atomic Energy Commission. He has a BA degree from Gustavus Adolphus College and an MA from the University of Minnesota and is a graduate of Harvard Business School's Advanced Management Program.

Schleede is the author of many papers and reports on energy matters. His articles appear in various publications and/or are covered in the energy trade press. He does not have his own web site but his papers have been picked up in full text by various public policy group web sites. Since 2001, Schleede has analyzed and written a lot about wind energy. The facts (a) convinced him that wind turbines are a niche technology that would never make a significant contribution toward meeting US energy requirements, and (b) demonstrated that the US DOE's Office of Energy Efficiency & Renewable Energy (DOE-EERE); the National Renewable Energy "Laboratory" (NREL) and other DOE contractors, *using tax dollars*, distribute false and misleading information on wind energy.

Schleede has been a frequent target of ad hominem attacks by officials from the wind industry as well as NREL and other DOE-EERE contractors. Their attacks seldom deal with the substantive issues he raises. AWEA and other DOE funded organizations (using tax dollars that flow through DOE-EERE) have claimed falsely that Schleede works for fossil-fuel industries. In response, Schleede notes that their claims are false and that ALL his work on wind energy has been self-financed. He has offered leaders of the attacking organizations (including NREL) the opportunity to review all his personal and business financial records, provided that (a) the work is done by an independent third party who can assure appropriate confidentiality of information and (b) the work is paid for by the individual and organization making the charges and is not reimbursed by DOE or otherwise paid for by using more tax dollars.

## Endnotes

- <sup>1</sup> Kansas Energy Council, Energy Plan Draft--Chapter 5--Wind Energy.
- <sup>2</sup> KCC Staff Evaluation of the Governor's 2015 "Wind Challenge," June 20, 2006 Draft, page 1.
- <sup>3</sup> Ibid, page 6.
- <sup>4</sup> An evaluation of the December 2004 Kansas Energy Council recommendations, "Misplaced State Government Faith in Wind Energy," March 1, 2005, can be found on line at <http://www.windaction.org/documents/91> and <http://www.wind-watch.org/documents/wp-content/uploads/schleede-kansas.pdf>.
- <sup>5</sup> An Assessment of Wind Power Economics in Kansas: 2005-2035, KCC Staff, April 27, 2006, page 5.
- <sup>6</sup> Ibid, page 5.
- <sup>7</sup> Ibid, page 6.
- <sup>8</sup> Several examples of critical issues dealt with only "qualitatively" are described in section 1.3 of the June 20, 2006, KCC Staff Evaluation of the Governor's 2015 "Wind Challenge," pages 6-8.
- <sup>9</sup> Mansour, Yakout, CA ISO President & CEO, Prepared statement for the California State senate Committee on Government Operations, August 9, 2006, p. 4.
- <sup>10</sup> E.g., see the "informal white paper" presented to the Texas Legislature, "Transmission Issues Associated with Renewable Energy" that can be found at [www.ercot.com/news/presentations/2006/RenewablesTransmissi.pdf](http://www.ercot.com/news/presentations/2006/RenewablesTransmissi.pdf) and Eon Netz 2005 Wind Energy Report, [http://www.eonnetz.com/EONNETZ\\_eng.jsp](http://www.eonnetz.com/EONNETZ_eng.jsp).
- <sup>11</sup> The "capacity factor" of a generating unit is determined by dividing the kilowatt-hours of electricity actually produced by the rated capacity of the unit (in kilowatts – kW) times the hours in the calculation period – often a year (8760 hours). A 1.5 MW (1,500 kW) wind turbine that produced 3,942,000 kWh of electricity in 1 year would have a capacity factor of 30% (i.e., 3,942,000 divided by 1,500 kW x 8760 hours in a year (13,140,000) = 30%.
- <sup>12</sup> <http://www.awea.org/pubs/factsheets/EconomicsOfWind-Feb2005.pdf>
- <sup>13</sup> [http://www.eere.energy.gov/windandhydro/windpoweringamerica/pdfs/wpa/wpa\\_update.pdf](http://www.eere.energy.gov/windandhydro/windpoweringamerica/pdfs/wpa/wpa_update.pdf)
- <sup>14</sup> June 5, 2006 email from KCC staff (Mr. Cita) to Mr. Harkin.
- <sup>15</sup> [http://www.eia.doe.gov/cneaf/electricity/page/eia906\\_920.html](http://www.eia.doe.gov/cneaf/electricity/page/eia906_920.html)
- <sup>16</sup> December 15, 2004, presentation by Mr. Ed Feo to the Renewable Energy Resources Committee of the American Bar Association: <http://www.abanet.org/enviro/committees/renewableenergy/teleconarchives/121504/>. See also March and December 2003 statements by Mr. Keith Martin of Chadbourne & Parke LLP at wind energy conferences. Mr. Martin also asserted that state tax breaks can account for an additional 10%.
- <sup>17</sup> Citizens for Tax Justice, "Bush Policies Drive Surge in Corporate Tax Freeloading," September 22, 2004, 68 pp. <http://www.ctj.org/corpfed04an.pdf>. During 2002-03 FPL Group's subsidiary, FPL Energy (largest owner of wind generating capacity in US), invested heavily in wind, permitting some \$1.2 billion in depreciation deductions.
- <sup>18</sup> KCC Staff Evaluation of the Governor's 2015 "Wind Challenge," June 20, 2006 DRAFT, page 11
- <sup>19</sup> Accelerated depreciation is referred to by the Internal Revenue Service (IRS) as Modified Accelerated Cost Recovery System (MACRS). Rules are described in IRS Publication 946.
- <sup>20</sup> For a detailed example of the value of the accelerated depreciation deduction, see "Misplaced State Government Faith in Wind Energy," March 1, 2005, pages 12-13. (See Endnote 4, above, for web reference.)
- <sup>21</sup> "Encouraging Development of Kansas Wind Energy Resources," by Joe King, August 23, 2006, page 16.
- <sup>22</sup> "Misplaced State Government Faith in Wind Energy," March 1, 2005, pages 14-17.
- <sup>23</sup> Iowa Department of Natural Resources, *Top of Iowa Wind Farm Case Study*, July 2003. [http://www.iowadnr.com/energy/renewable/files/top\\_casestudy.pdf](http://www.iowadnr.com/energy/renewable/files/top_casestudy.pdf)
- <sup>24</sup> See "Errors and Excesses in NREL's JEDI-WIM Model that Provides Estimates of the State or Local Economic Impact of "Wind Farms," April 28, 2004, which can be found at <http://www.windaction.org/documents/104>
- <sup>25</sup> Rebuttal testimony by Thomas Hewson, Jr. (Energy Ventures Analysis, Inc) on behalf of Friends of the Western Mountains before the Maine Land Use Regulation Commission relating to a proposed 90 MW wind plant <http://www.wind-watch.org/documents/rebuttal-testimony-of-thomas-hewson-jr/>.
- <sup>26</sup> An observation supported by an April 18, 2006, email from a KCC staff member to the KEC Chairman.
- <sup>27</sup> KCC Staff Evaluation of the Governor's 2015 "Wind Challenge," June 20, 2006 DRAFT.
- <sup>28</sup> <http://kec.kansas.gov/members.htm>
- <sup>29</sup> <http://kec.kansas.gov/meetings.htm>
- <sup>30</sup> "Encouraging Development of Kansas Wind Energy Resources," A White Paper Prepared for the Kansas Energy Council by Joe King, Criolis, August 23, 2006, page 1.
- <sup>31</sup> Ibid, page 3.
- <sup>32</sup> Ibid, page 3.