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March 29, 2003

VIA FAX, MAIL & EMAIL

Dr. Richard Truly, Director
National Renewable Energy Laboratory
1617 Cole Boulevard
Golden, Colorado 80401

Dear Dr. Truly:

It has come to my attention that an employee of the National Renewable Energy Laboratory (NREL), Mr. Larry Flowers:

1. Asserted, during public “forums” on wind energy held on March 25, 2003, in Ludington, Michigan, that I am in some way associated with the coal industry and, therefore, my analysis and writing concerning wind energy should not be considered credible. Over 150 people attended these public forums.
2. On March 27, 2003, distributed via email to one or more participants in the Ludington forums the attached undated, unsigned paper which questions the independence of my work, questions the truthfulness of my claim that my work on wind energy is self-financed, and makes other false and misleading statements. Mr. Flowers’ email forwarding the paper includes the following statement: “MI wind colleagues: here is a brief piece written in response to Glen [sic] Schleede misinformation. I suggest you distribute this to participants in the Ludington meeting...”

Mr. Flowers’ False Statements

Mr. Flowers’ assertions about me made during and after the “forums” are false. Apparently Mr. Flowers participated in the forums in Ludington as an official representative of the National Renewable Energy Laboratory. In addition, he used his NREL email account when distributing the attached paper. Apparently both actions were undertaken at taxpayer expense.

Please let me know immediately whether:

- a. Mr. Flowers was acting as an official of NREL when he took the actions described above.
- b. The views he expressed during the forums are to be considered official views of NREL, the organizations holding the contract with the US Department of Energy for the operation of NREL, and/or the US Department of Energy.
- c. You are prepared to publicly repudiate Mr. Flowers’ false assertions.
- d. You will direct Mr. Flowers to notify all participants in the Ludington forums that his statements about me are false.

- e. You will direct Mr. Flowers to send me a written admission of his false statement and a formal apology.

The unsigned, undated paper distributed with Mr. Flowers' Email

I am well aware that NREL's wind energy activities are often highly promotional and not characterized by scientific methods, engineering principles and objectivity that one would normally expect from an organization called a "laboratory." However, Mr. Flowers' distribution of the unsigned, undated paper seems to go beyond NREL's usual highly promotional and "one-sided" written and oral presentations on wind energy. (For example, NREL documents do not admit the full, true costs of wind energy.)

The paper distributed by Mr. Flowers includes false and misleading statements about wind energy and about me, personally. For example:

1. **The personal attack.** Section 1, dealing with my "Background and Funding Sources" is ad hominem and innuendo. Neither the fact that I worked for the National Coal Association over 20 years ago (1977-1981), nor other aspects of my approximately 30 years' experience with energy market and policy issues in the federal government and private sector are a secret.¹ However, any implication that I am now associated with the coal industry in any way OR that my work on wind energy is not independent and self-financed is false.

If NREL officials have any doubts about the independence of my work on wind energy and my claim that it is self-financed, I have a specific suggestion to resolve the matter. With appropriate assurance of confidentiality, I will disclose to a mutually acceptable independent third party any and all business and/or personal financial information that is necessary to demonstrate that my work is self-financed. The only condition I would interpose is that the cost of such arrangements are to be borne by Mr. Flowers and other NREL officials who have questions and/or the National Renewable Energy Laboratory. (Ideally, the cost would not be borne by NREL since all such costs are borne by taxpayers.)

2. **The cost of wind energy.** Section 2 of the paper distributed by Mr. Flowers, which deals with the cost of wind energy, appears to be deliberately misleading. For example:

- a. NREL must be fully aware that the Federal Production Tax credit is only one of several subsidies available to "wind farm" owners and developers and others in the wind industry. The value of five-year double declining balance accelerated depreciation available to "wind farm" owners permits wind farm owners to deduct hundreds of millions of dollars from income before they calculate their potential federal and state corporate income tax liability and before deducting the lucrative Production Tax Credit.

The value of accelerated depreciation alone in 2003 for a wind farm coming on line on January 1, 2003, could be \$0.0533 per kilowatt-hour (kWh).² When the \$0.018 per kWh production tax credit is added, the value of the two federal tax benefits in 2003 would add up to \$0.071 per kWh.

In most states, accelerated depreciation available to wind energy can also be used to reduce state corporate income tax liability. For example, in a state that fully conforms its corporate income tax to the federal system and with a 10% corporate tax rate, the "wind farm" owner could reduce its state income tax liability by the equivalent of an

additional \$0.015 per kWh – for a total of \$0.086 per kWh. If the “wind farm” began operation later in the first tax year, the per kWh value of the depreciation benefits in that tax year would be proportionately greater.

These are truly astounding tax benefits that go a long way in explaining why some companies are so eager to build “wind farms.” Of course, the tax burden escaped by “wind farm” owners is shifted to remaining taxpayers. Notably, wind energy promotional documents issued by the US Department of Energy and NREL do not acknowledge the huge value to “wind farm” owners of the generous depreciation benefits that reduce both federal and state income tax liability.

In addition to the above, it should be noted that several states provide additional direct subsidies to “wind farm” owners (e.g., Minnesota) or to consumers who purchase electricity produced from wind.

The value of tax benefits and other subsidies available to the wind industry in 2002 exceeded \$300 million and are a part of the true cost of wind energy. These costs are being shifted from “wind farm” owners to remaining taxpayers.

In addition, the Renewable Portfolio Standards that have been adopted by several states are another form of subsidy for “wind farm” owners. Such standards are a particularly insidious subsidy since they force higher costs on millions of electric customers without their knowledge. The standards force suppliers of electricity to purchase electricity from “wind farms” or other “renewable” energy facilities, generally without regard to its higher cost. In some cases, a few electric customers who agree voluntarily to pay a premium price for electricity produced from “renewable” sources pay part of the extra cost. However, the remaining cost of the electricity, as well as the cost of administering the voluntary programs is passed on to electric customers in their monthly electric bills.

The paper distributed by Mr. Flowers fails to acknowledge still other elements of the full, true cost of wind energy. These include the cost of providing the back up generation that must be kept immediately available to compensate for the intermittent, highly variable and largely unpredictable output from wind turbines, (b) the extra costs of providing transmission for that electricity, and (c) other costs incurred in keeping transmission systems in balance.

- b. The reference in the paper to an article in the journal, *Science*, is not specific. However an article appearing in the August 2001 “Policy Forum” section of *Science* that made the same or similar assertions has been widely criticized and discredited. Apparently, articles appearing in the “Policy Forum” section of *Science* are not subjected to the kind of peer review prior to publication that one would normally expect from a truly scientific publication.
 - c. Certainly, traditional energy sources have received and continue to receive government subsidies. However, when considered in proportion to wind energy’s existing and EIA projected contribution in supplying US energy requirements, wind energy is already among the most heavily subsidized energy sources – and, perhaps, THE highest.³
3. **Windmill Noise.** Section 3 of the paper appears to deliberately understate the problems and concerns caused by windmill noise. Mr. Flowers apparently chooses to ignore the problems

of noise described by a member of the Ludington, Michigan, forum panel who is directly and adversely affected by windmill noise. The paper distributed by Mr. Flowers also ignores the fact that windmill noise is an issue in nearly every town and county that has been forced to deal with wind turbines, is commonly addressed in local ordinances covering wind turbines and is widely acknowledged as an issue in windmill siting. Furthermore, a utility in Wisconsin found it necessary to buy homes near its “wind farm” because of noise problems and a Wisconsin study apparently demonstrates that proximity to a “wind farm” reduces property values.

4. **Space required for windmills.** Section 4 of the paper also appears deliberately misleading because its discussion of space requirements does not take into account such obvious considerations as the total land area affected, the competing uses for that land, the growing objections to “wind farms” in ecologically important, scenic and populated areas, the absence of transmission capacity in remote areas where “wind farms” may be acceptable, the inefficient use of transmission capacity by intermittent electricity from wind turbines, the high cost of transmitting electricity from remote “wind farms” to load centers.
5. **Unreliability of electricity from wind energy.** Section 5, dealing with the reliability of wind energy also appears deliberately misleading. For example:
 - a. Hopefully, NREL officials dealing with electricity issues understand the critical difference between generating units that are “dispatchable” (i.e., can be called upon to produce electricity when needed to meet electricity demand) and “intermittent” (i.e. produce electricity only when certain conditions are met).

Wind turbines are able to produce electricity only when wind speeds are within certain limits. Wind turbines produce no electricity when wind speeds are not within this range. As your staff must know, any comparison between the availability of dispatchable generating units and intermittent generating units is totally meaningless.
 - b. There is no factual basis for the suggestions in this section of the paper that the variability in the output of electricity from wind turbines is similar to variability in output of dispatchable generating units.
6. **Tax breaks and tax income.** Section 6, dealing with tax benefits and income to local communities is both false and misleading:
 - a. The paper falsely asserts that “wind farms” do not enjoy exemptions from state and local taxes. Such a false claim seems odd since information on state and local tax breaks for “wind farms” is readily available on the web site www.dsireusa.org. Apparently this web site and the work underlying it is paid for with tax dollars flowing through the US Department of Energy’s Office of Energy Efficiency and Renewable Energy, the same source for most of the tax dollars used by NREL.
 - b. The assertion that “property taxes on wind can be a significant income source for rural counties” is misleading. Wind industry lobbyists have secured reductions and/or exemptions from property taxes (and/or sales taxes) in several states (e.g., Wisconsin, West Virginia, New York, Iowa). Furthermore, the extra costs of wind energy – particularly when the full, true costs are taken into account – that are shifted from “wind

farm” owners to electric customers and/or taxpayers exceeds by a wide margin the income that a state can derive from the presence of a wind farm.

Dr. Truly, as indicated earlier, the word “laboratory” in an organization’s name conveys the impression that the organization follows scientific methods and engineering principles, and produces objective information. The people of America, especially those who pay the taxes that provide the funds for the operation of NREL and pay the salaries of Mr. Flowers and other NREL employees, have a right to expect much greater honesty and objectivity than has been displayed by Mr. Flowers. NREL should be dedicated to *the public interest*, not to the interest of particular industries or advocacy groups. There is no excuse for employees of NREL to behave as if the organization is a wholly owned subsidiary of the wind industry.

I look forward to your early response to my questions on pages 1 and 2, confirmation that Mr. Flowers has notified participants in the Ludington, Michigan, forums that his statements about me are false, and a prompt, written apology from Mr. Flowers.

The above views and requests are provided as a citizen, consumer and taxpayer and are not on behalf of any client or other interest.

Sincerely,

Attachment: Unsigned, undated paper
attached to Mr. Flowers’ email.

Glenn R. Schleede

Cc: Secretary of Energy Abraham
Assistant Secretary Garman
OMB Director Daniels

End Notes:

¹ I will provide more details if you wish.

² For example, a 100 MW (100,000 kW) “wind farm” with capital cost of \$1 million per MW (i.e., total capital cost of \$100,000,000 million) coming on line in 2003 could take a \$40,000,000 depreciation deduction from income. With a 35% marginal tax rate, the “wind farm” owner could reduce his federal income tax liability by \$14,000,000 BEFORE taking advantage of the federal Production Tax Credit. If the wind farm began operation on January 1, 2003, and produced at an annual average 35% capacity factor, it would produce 262,800,000 kWh (100,000 kW x 8760 hours x .30 capacity factor). Therefore, the value of the depreciation deduction in 2003 in reduced federal tax liability would be equal to \$0.0533 per kWh (\$14,000,000 divided by 262,800,000). The initial year depreciation deduction would be only 20% in the first tax year if the “wind farm” did not qualify for the “bonus” accelerated depreciation authorized by the Job Creation and Worker Assistance Act of 2002. However, the owner would still be able to take a depreciation deduction of \$20,000,000 for the first tax year and then another deduction of \$32,000,000 in the second year – with attendant reductions in tax liability. State income tax liability would be similarly affected.

³ EIA, in its Annual Energy Outlook 2003, projects that wind will supply 27/100 of 1% of US energy consumption in 2025 while fossil energy sources would supply 87.27% of US energy consumption in 2025 – or more than 320 times the contribution of wind energy.

MR. SCHLEEDE AND THE WIND

Recently, Mr. Glenn Schleede, who states that he is a "self-financed" consultant acting in the public interest, circulated in the Pacific Northwest one of a series of "fact sheets" he has written over the past several years attacking wind energy.

The American Wind Energy Association (AWEA) has reviewed Mr. Schleede's publications, and while we do not wish to spend scarce resources of time and effort getting bogged down in lengthy point-by-point responses, we would like to address a number of issues raised by Mr. Schleede's writings:

1. Mr. Schleede's Background and Funding Sources

It is highly commendable, if true, that Mr. Schleede is willing to take the time and spend the money to develop informational materials on energy policy for the general public. Unfortunately, public-spiritedness is no guarantee of fairness or accuracy. The materials that he has authored and we have reviewed over the past several years are basically anti-wind mudslinging rather than useful information sources. The public policy debate is hindered by such distortion, regardless of the funding source.

In this connection, it seems relevant to note that Mr. Schleede has also been an active campaigner against the Kyoto Agreement on global warming and that he is a former Senior Vice President of the National Coal Association.

2. Is wind energy costly?

Mr. Schleede claims that wind energy is too costly, and points out that it is subsidized by the federal government.

The cost of electricity from new wind plants is competitive with the cost of new conventional (coal, gas, nuclear) power plants, with the federal wind energy production tax credit taken into account. It is true that few wind plants would be built without this incentive/subsidy. However, it is also true that the traditional energy industries are generously subsidized in a variety of ways, ranging from the federal government pledging its financial backing to the nuclear industry in case of an accident like Chernobyl to payments of about \$350 million annually to coal miners suffering from black lung disease.

More importantly, coal, our largest electricity source, receives an enormous hidden subsidy due to the fact that its environmental costs are not included in its market price. A recent article in the scientific journal "Science" placed the cost of electricity from a new coal plant at 3.5 to 4 cents per kilowatt-hour (kWh), but added that its true cost to the public is 5.5 to 8.3 cents/kWh when environmental costs such as air pollution and acid rain are added in. This amounts to a subsidy ranging from 60% to more than 100%(!). As long as the economic system does not reflect such costs, it is good public policy to provide offsetting subsidies to clean energy sources such as wind.

3. Are wind generators noisy?

Objective measurements with sound meters show that a wind turbine, at a distance of 500 to 750 meters, is no noisier than a kitchen refrigerator or a moderately quiet room. For further information, see <http://www.awea.org/faq/noisefaq.html> .

4. Do wind farms take up too much space?

"With today's wind turbine technology, wind power could supply 20% of this nation's electricity, according to a recent study by Pacific Northwest Laboratory (PNL). Today's technology exploits high-wind locations--those in wind power class 5 or greater--with average annual wind speeds of approximately 16 mph and higher at a height of 30m. To provide 20% of America's electricity, 560,000 million kilowatt-hours (kWh) per year, 0.6% of the land of the lower 48 states would have to be developed with wind power plants. This area, about 18,000 square miles, is about the size of four counties in Montana. Furthermore, less than 5% of this land would be occupied by wind turbines, electrical equipment, and access roads. Most existing land use, such as farming and ranching, would remain as it is now."

Source: "America Takes Stock of a Vast Energy Resource," Utility Wind Interest Group, February 1992--part of a series of informational brochures produced under the auspices of the Utility Wind Interest Group by the Technical Information Program located at the National Renewable Energy Laboratory (NREL) and published by the Electric Power Research Institute (EPRI).

5. Is wind unreliable?

Mr. Schleede claims that wind energy is unreliable, and is not always clear as to whether he is talking about the wind itself or about wind generators. Let's be clear--the wind does not always blow, but wind turbines are highly reliable, and ready to generate electricity when it does. Average wind turbine "availability" (readiness to generate) is much higher than the average availability of conventional power plants (98% for wind, approximately 95% for conventional power plants). Furthermore, wind projects consist of many relatively small turbines rather than one or two large generators like conventional power plants. Therefore, the likelihood of a sudden, unanticipated loss of all power from a wind plant is significantly less than that for a conventional power plant of equivalent size.

The wind is definitely variable, but utility system operators are always dealing with a changing situation, as consumer demand fluctuates and power plants (conventional as well as wind) start up or shut down. Adding 10-15% percent of wind generation to a utility system has very little effect on a system already designed to handle this level of variability. If wind were the ONLY power source, then major changes to the system would be needed--but no one envisions that.

6. Does wind provide tax income to local communities and counties?

Mr. Schleede claims that wind farms are often exempt from state and local taxes. This is not true. Property taxes on wind can be a significant income source for rural counties.

A final word: wind energy is not perfect. It IS more variable than other energy sources, and to be used on a large scale in the U.S., it will require additional transmission lines. But on the positive side:

- It is very clean.
- It cannot be depleted.
- It will allow us to diversify our energy sources.
- It can help to save family farms.
- It is quiet and easy on the environment.

On balance, it is one of the most promising new energy sources available to America and the world.