

**From:** Ruby Holborn [REDACTED]

**Sent:** Tuesday, February 5, 2019 4:02 PM

**To:** PUC-PUC <[PUC@state.sd.us](mailto:PUC@state.sd.us)>

**Subject:** Fwd: [EXT] [web] Response to story: The quixotic myth of 'renewable energy'

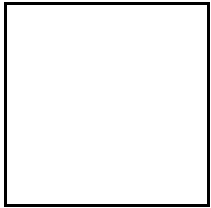
Please place the below, "The quixotic myth of "renewable energy", with approvals from McCook Gazette & author Bruce C. Desautels, on the pending Wind Dockets:

EL18-003, EL18-026, EL18-046 & EL18-053.

Thank You kindly,

Ruby Holborn

[REDACTED] Sioux Falls, SD 57110



[Letter to the Editor](#)

# The quixotic myth of 'renewable energy'

Friday, January 18, 2019

You're wise enough not to buy a bridge in Brooklyn, or sign a deed for ocean front property in Arizona – but siphoning vast sums from the public treasury for a quixotic enterprise? Well, damn, let's git er done! When it comes to "cheap renewable green energy," there is no free lunch from the whirling blades of a wind turbine – but plenty of hot air to push this expensive unreliable pipe dream into the stratosphere.

In a 2016 report, the Global Wind Energy Council stated “the proliferation of wind energy into the global power market continues at a furious pace, after it was revealed that more than 54 gigawatts of clean renewable wind power was installed across the global market last year.” But, in 2014, wind turbines provided less than one percent of the world’s energy consumption. In fact, the combined contribution of wind and photovoltaic power supplies less than one percent of the world energy demand.

For the past 40 years, the growth in global energy demand has equaled about 2 percent per year. According to the International Energy Agency (IEA), between 2013 and 2014 that demand grew by 2,000 terawatt-hours (TWH).

However, electrical generation equals less than 20 percent of the world’s total energy production; traditional fuels provide the remaining 80 percent for transport, heat, and industry. According to IEA’s 2016 Key Renewable Trends, wind power accounted for 0.46 percent of total energy consumption in 2014; solar supplied less.

After decades and billions of dollars expended in development and production, the contribution of wind power to the world energy market remains relatively zero.

However, the wind and solar lobby have no incentive to reveal this fact. Their mantra is “14 percent of the world’s energy is renewable,” but in the context of wind and solar energy this is a dishonest figure. Seventy-five percent of that 14 is derived from biomass fuels, such as wood and dung – mostly used for cooking in third-world countries.

Even in wealthy nations, where wind and solar power are subsidized, most of the reliable renewable energy comes from the burning of wood or coal, and through hydro-electric installations. So, let’s look at the unpleasant realities of wind power.

The typical capacity of a two megawatt (MW) wind turbine is 0.005 TWH per year. At two percent growth per year in global energy demand, if these machines were used to supply only that rate of increase, the number required would equal nearly an additional 350,000 units on line PER YEAR!

For the typical “wind farm” the power density ratio is 50 acres of land per one MW of power. 350,000 turbines would require an expanse of land equal to 35 million acres.

That converts to 54,687 square miles – an area greater than two-thirds the state of Nebraska, just to keep up with an annual demand increase of two percent! To put this in perspective: if we were to become the sole supplier of global renewable wind energy, then in 50 years seven-eighths of the continental U.S. would be covered with wind turbines! And this would not include that which would be required to replace fossil fuels!

Wind turbines are dependent on mass airflow, and air in motion is considered a “fluid.” In fluid dynamics, the efficiency of a turbine is determined by the Betz Limit, which sets how much kinetic energy may be extracted from a moving fluid. Modern wind turbines come close to this limit. But the machine’s effectiveness is also determined by available wind – an unreliable uncontrollable variable. Moreover, the lifespan of modern wind turbines is about 10 years, and this is mostly due to gearbox failure. So, while they may be efficient at extracting energy from the wind, in the context of return on investment, wind turbines are hardly a model of economic efficiency – more on that aspect later.

These machines do not magically fall from the sky, ready to use, environmentally pure and ecologically harmless. There are negative consequences: those which we see, such as the danger to migratory birds, the loss of open spaces; and those we don’t see, such as the large quantities of toxic material produced by the mining of rare-earth metals, which are used to manufacture the generator’s magnets.

The moniker that these machines are “clean and green” is disingenuous at best ...

The pedestals and turbine units are constructed of steel alloys, and set upon concrete foundations. Steel is a product of coal; used both as an alloying ingredient and as a fuel to refine the iron ore. The cement in concrete is also made using

coal. Machinery and petroleum products are required to manufacture, transport and erect the turbines. Equipment is needed to construct roads for site access.

As a total unit, the typical two MW wind turbine weighs 250 tons. Manufacturing one ton of steel requires one half ton of coal. The concrete foundation supporting the tower requires nearly 25 tons of coal to produce the cement. That's 150 tons of coal to manufacture one wind turbine. At 350 thousand units per year the manufacturing process alone will require 50 million tons of coal per year.

The economics of renewable energy are anything but economical. In fact this "cheap" energy is arguably making electricity more expensive. Firstly, because the unreliable nature of wind requires expensive supplements to the grid: natural gas plants, hydro-electric dams, batteries, or other forms of "stand-by" power. Secondly, the cost of transmission line is more expensive for solar and wind power.

Why? Because where one set of transmission lines is required to bring electricity from a typical coal-fired or nuclear power plant, many separate lines are required to carry power from the various locations where the topography is ideal for wind farms – and these are usually much longer runs, as the point of generation is remote from the user. This is not so with traditional power plants. Nor can wind turbines lead to cheaper electricity when these machines are used only part time, and duplicate existing equipment. The U.S. Energy Information Administration provides the following data:

For the U.S. as a whole, electricity prices rose 7 percent, while electricity from solar and wind grew from two to eight percent from 2009 to 2017

In North Dakota, electricity prices rose 40 percent while electricity from solar and wind grew from nine to 27 percent between 2009 and 2017.

In South Dakota, electricity prices rose 34 percent while electricity from solar and wind grew from five to 30 percent between 2009 and 2017.

In Kansas, electricity prices rose 33 percent while electricity from solar and wind grew from six to 36 percent between 2009 and 2017.

In Iowa, electricity prices rose 21 percent while electricity from solar and wind grew from 14 to 37 percent between 2009 and 2017.

In Oklahoma, electricity prices rose 18 percent while electricity from solar and wind grew from four to 32 percent between 2009 and 2017.

In Hawaii, electricity prices rose 23 percent, while electricity from solar and wind grew from 3 to 18 percent between 2009 and 2017.

In California, electricity prices rose 22 percent, while electricity from solar and wind grew from 3 to 23 percent between 2009 and 2017.

States that increased their use of solar and wind generation realized a large increase in electricity costs despite a large decline in natural gas prices. If the cost of NG had not collapsed at the same time solar and wind power were scaled up in the U.S., electricity costs in these states would have been far larger. Further, as they assume a greater role in the power grid, the economic value of solar and wind decline. They produce too much electricity when customers do not need it – and not enough when they do.

Another consideration is the amount of raw materials (steel, fuel, glass, concrete, cement) required (Tons per TWH) to fabricate wind and solar power plants compared to more traditional generation methods. Their ranking, from highest to lowest: Solar PV, Hydro, Wind, Geothermal, and Nuclear.

The underlying commonality to all these additional costs is the physical limits in generating electricity from sunlight and wind. Both are dilute and unreliable. Their use requires far greater expanses of land, longer and less-utilized transmission lines, and large amounts of storage.

In the quest for energy independence, of all the resources we could tap to produce cheap, renewable clean energy, the last thing our state and federal governments should expend limited resources on is wind and solar power projects, for reasons of fundamental physical constraints.

The oft reiterated promise of "cheap renewable green energy" is a quixotic myth, fabricated by those who have an economic incentive to lie, championed by those with a political agenda to advance, and believed by those who are too intellectually lazy to do basic research. While there is no "free lunch," there are practical, cost-effective solutions: natural gas – made plentiful by technological advances in petroleum exploration and extraction – is but one. If not yet technologically feasible, nuclear fusion is worth further study and experimentation. Nuclear fission is also a realistic solution since we now have the ability to make reasonably safe, reliable, cost-effective reactors that produce minimal toxic waste. Americans need to stop chasing a pipe dream and begin making rational policy decisions about energy.

This commentary was compiled using multiple public and private sources.

## **Bruce C. Desautels**

Stratton, Nebraska

----- Forwarded message -----

From: **Bruce D** <[brucesjt8d@aim.com](mailto:brucesjt8d@aim.com)>

Date: Mon, Jan 21, 2019 at 9:48 PM

Subject: Re: [web] Response to story: The quixotic myth of 'renewable energy'

To: [REDACTED]

Dear Mrs. Holborn,

Thank you for your prompt reply.

I am glad to see that you and your husband are fighting to stop the encroachment of the fraud that is "wind power" on our rural communities.

You may also be interested in a quote from Warren Buffet, who is heavily invested in Wind Power - through his MidAmerica Energy Holdings, which, as of 2014, had 1267 wind turbines in the U.S..

Wind power is heavily subsidized by the federal government; and in some cases, by the state governments

MidAmerican Energy Company is an energy provider serving 760,000 electric customers and 742,000 natural gas customers in Iowa, Illinois, Nebraska and South Dakota. MidAmerican Energy is a wholly owned subsidiary of Berkshire Hathaway Energy and is headquartered in Des Moines, Iowa.

Here is the statement Warren Buffet made to investors, during a 2014 speech in Omaha, about "Markets and the World:"

*"I will do anything that is basically covered by the law to reduce Berkshire's tax rate. For example, on wind energy, we get a tax credit if we build a lot of wind farms. That's the only reason to build them. They don't make sense without the tax credit."* - Warren Buffet

Put Buffet's 2014 remark in context with what he is now doing (in the area of wind power) and you may then understand the level of disingenuous PR these people churn out for public consumption.

In closing,

**I, Bruce C. Desautels, hereby give consent to include my letter, The Quixotic Myth of 'Renewable Energy,' in your testimony.**

However, in so doing, there is one caveat:

Much of what I wrote is sourced from others; but the list is so long that I chose to make a simple statement that the information for my letter's content came from both public and private sources.

In that light, I am not knowledgeable as to whether this, for reasons of copyright, may impede your submission, per the guidelines stated in the information you provided on public submissions.

Bets of luck to you in your fight,

Regards,

Bruce C. Desautels

-----Original Message-----

From: Crosby, Bruce <[bcrosby@mccookgazette.com](mailto:bcrosby@mccookgazette.com)>

To: Ruby Holborn [REDACTED]

Cc: Bruce D <[brucesjt8d@aim.com](mailto:brucesjt8d@aim.com)>

Sent: Mon, Jan 21, 2019 7:10 am

Subject: Re: [web] Response to story: The quixotic myth of 'renewable energy'

You have our permission to reprint the letter referenced below.

Bruce Crosby

editor

McCook Gazette

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**From:** Ruby Holborn

**Sent:** Sunday, January 20, 2019 10:31 AM

**To:** Crosby, Bruce; [REDACTED]

**Subject:** [web] Response to story: The quixotic myth of 'renewable energy'

I am asking for permission to use the letter:

The quixotic myth of 'renewable energy' written by Bruce C. Desautels.

I need both the McCook Gazette and Bruce Desautels written permission to place it on our SD PUC Wind Energy Dockets:

EL18-003, EL18-026, EL18-046 and EL18-053

Thank You kindly.

Regards,

Ruby Holborn