

IS WIND ENERGY DEVELOPMENT THE RIGHT CHOICE FOR OUR COMMUNITY?

Concerns with Industrial Wind Turbines:

1. **Deter tourism** (reduced number of people coming to hunt/bike/fish/shop; Balloon Days, community events).
 - A comprehensive quantitative empirical study on wind turbines and tourism demand confirmed a negative relation between wind turbines around municipalities and tourism demand for municipalities (not located near the coast). (Energy Policy, Vol. 86, Nov. 2015, pgs. 506-519)
2. **Pit neighbor against neighbor** and destroys the friendly rural climate that we enjoy today.
3. **Shadow flicker & constant noise**
 - Results from a study in Finland (April 2019) found the infrasound could be measured at a distance of at least 18-37 miles from the wind parks over 50% of the time, some almost daily.
4. **Diminish local pride** and people's willingness to invest their time & talents in their community.
5. **Industrial wind turbines are uneconomic.** Industrial wind power is not a viable economic alternative to other energy conservation options.
 - The University of Chicago reported in 2019 that renewable energy mandates "significantly increase average retail electricity prices." Thanks to the heavy deployment of renewables, electricity prices in California between 2011 and 2018 rose seven times more (28%) than they did in the rest of the country (5%), while electricity prices have risen 50% in Germany since 2006. Today, Germany spends nearly twice as much for electricity that produces 10 times more carbon emissions than France. Just 14% of Germany's energy and 35% of its electricity in 2018 came from renewables. And Germany's carbon emissions haven't declined significantly since 2009.
 - On an industrial level, wind-generated electricity cannot be stored, creating factors that negate most of the environmental benefits. Because commercial wind turbines need a constant back-up source of power (which most often are the fossil fuel-burning units now in service), they're duplicating rather than replacing electricity. Pollution and CO₂ levels aren't reduced, because conventional plants must stay on line, essentially going into a less efficient mode every time the wind blows. In Denmark where almost 20% of their electricity production is wind generated, they consume only a small portion of it and CO₂ levels have recently risen—despite thousands of operating turbines.
6. **Cause insufficiently researched health effects.** More and more medical professionals are concerned about the risks. The Madison County Board of Health recommended a 1.5-mile setback due to concerns of health risks.
 - A growing body of scientific and medical evidence suggests that the health effects on those subjected to long and frequent periods of pulsating, low-frequency noise associated with wind turbines include sleep disturbances leading to depression, chronic stress, migraines, nausea and dizziness, exhaustion and anger, memory loss and cognitive difficulties, cardiac arrhythmias, increased heart rate and blood pressure. Kamperman and James (scienceandpublicpolicy.org) list no fewer than 13 studies that show noise from wind turbines at night can disturb residents more than 2 km away.
 - "The annoyance of sight and the heard pulsating wind turbulence creates indirect adverse health effects. This combined with the direct effects of sleep disturbance may activate the body's autonomic nervous system to increase sympathetic-mediated responses with endocrinological consequences...Increasingly activated, risk factors that promote adverse cardiovascular consequences may then promote/facilitate/enhance cardiovascular disease – most easily named as hypertension, arteriosclerosis, ischemic heart disease and stroke." – *Dr. W. Ben Johnson (cardiologist from the Iowa Heart Center), Testimony (pro-bono) before the Madison County Board of Health, Madison Country, IOWA.* <https://www.masterresource.org/wind-turbine-noise-issues/health-effects-of-wind-turbines-testimony-of-ben-johnson-versus-mid-american-energy-project-in-madison-country-iowa/>
7. **Reduce property values.**
 - A detailed study conducted by McCann Appraisal, LLC in the Quad Cities area showed a significant reduction in property value up to 2 miles from the nearest turbine.
 - "According to our research, an overwhelming majority of Realtors says that wind turbines NEGATIVELY impact PROPERTY VALUE. They estimate the range of impact to be from a 10% price reduction to being completely unsellable." - Based on a Wind Impact Study from the Forensic Appraisal Group (WI) who conducted a literature study, opinion study w/realtors and sales studies.
 - A three-year study of 600 property sales near the Melancton wind turbine developments north of Shelburne, Ontario showed that property values decreased by 20- 25% (an average of \$48,000), were on the market more than twice as long as properties in adjacent areas, and a large number (four times those that did sell) could not be sold at any price.

8. **Kill wildlife** (especially predatory birds, migratory birds and bats) and damage ecosystems. Also damaging to bee colonies.
 - “At wind power-generating facilities in Appalachia and California, wind turbines have killed large numbers of migratory birds and bats. Wind power facilities may also have other impacts on wildlife through alterations of habitat. Habitat destruction and modification is a leading threat to the continued survival of wildlife species in the United States.” — Impacts on Wildlife and Government Responsibilities for Regulating Development and Protecting Wildlife, United States Government Accountability Office, September 2005
9. MidAmerican **manipulates landowners** into signing a complex contract biased to their own interests. They come in quietly and few are aware of what’s going on until it’s too late. (They use the same language saying that everyone else has already signed and they might as well be a part of it.)
10. Wind turbines **do not avoid a meaningful amount of CO2**; far less than 1% of worldwide CO₂ emissions according to the American Wind Energy Association. The following link shows that people’s activities emit 35-40 Billion metric tons of CO₂ every year. <https://www.statista.com/statistics/276629/global-co2-emissions/>
11. **Destroys world-class, non-renewable farm ground.**
12. Easements are required over the ENTIRE farm, not just where the turbine will be placed. **THIS EASEMENT CAN BE MORTGAGED OR SOLD WITHOUT THE LANDOWNER’S APPROVAL.**
13. **Blades made of non-recyclable, toxic materials.** The blades must be replaced every 10 years or so. 59,000 US turbines will create millions of pounds of waste and wind only contributes 2% of our energy now. (6% of our electricity)
14. **Impedes efficient aerial applications** for agriculture.
15. **Tile damage & compaction.** The companies say they will fix tile damage but often damage requires proof and many landowners cite this is not done properly or in a timely manner. Some farmers note lower crop yields, sometimes significant losses, due to poor drainage, compaction, and mixing of subsoils with topsoil.
16. **Road damage.** The heavy equipment/traffic damages our rural roads and bridges, no matter how much gravel they add.
17. **Shadow strobing.** Turn your lights off and on and see how long it takes for that to get old.
18. **Noise** - rural nighttime decibel level is 25, a Vestas V120 2.0 is rated at 110.5 decibels by the manufacturer. Most wind companies ask for a 50-60 dBA allowance at a neighboring residence. No one wants to hear their neighbor’s “refrigerator” running at night. -- The World Health Organization (WHO) has concluded observable effects of nighttime, outdoor noise levels of 40 dBA or higher will lead to diminished health. This also occurs when levels inside homes (especially bedrooms) rise above 30 dBA or contain non-steady and/or low-frequency noise. The American Wind Energy Association and Canadian Wind Energy Association–sponsored literature review entitled “Wind Turbine Sound and Health Effects” acknowledges [that] wind turbine noise, including low frequency noise, may cause annoyance, stress and sleep disturbance and as a result, people may experience adverse physiological and psychological symptoms.
19. **Health concerns** – The Board of Health in both Madison County, Iowa and Brown County, Wisconsin have called wind turbines a potential health hazard. A recommendation of 1.5 miles was set from a non-participating home to a wind turbine. Wind companies fully admit negative impacts from 500-foot turbines experienced within 2,640 feet, yet regularly seek to build turbines 1,000-1,500 feet from the foundations of homes.

The paper that gives the most comprehensive view of the data is, [Wind Turbine Noise and Human Health: A Four-Decade History of Evidence that Wind Turbines Pose Risks](#) by Jerry Punch, PhD and Richard James, INCE, BME. This can be found at www.WindAction.org. After learning the negative impacts, 80% of the landowners who signed contracts in Madison County now want out but MidAmerican will not let them out of their contracts.

20. **Electromagnetic and Frequency Interference-** interference of TV, cell reception, radio and possibly Doppler radar. The turbines can disrupt radar and cause people to not be aware of severe weather events.
21. **Safety concerns-** Fire, ice throw, blade throw, [Trespass Zoning](#). GE’s ice throw equation is 1.5 X (hub height + rotor diameter). In addition, turbine manufacturers Vestas and Nordex require a 1,650 feet radius to be secured from a turbine in distress (for turbines under 400 feet in total height). Many of the turbines in our area at closer to 600 feet in total height. Another alarming fact...an unredacted manual from Nordex advises individuals to remain over 3,281 feet (1 km) from a turbine during a lightning storm due to the high risk of lightning strike to the turbine. This is over TWICE the distance that turbines are allowed near residences in Union County (setbacks are 1,500 feet for non-participants).

[Over 270 government entities across the U.S. have already banned or blocked industrial wind at the urging of their constituents. Many other communities are still fighting. Germany’s wind industry is collapsing because of the backlash and Norway’s protesting has shut down their wind industry. Even Hawaii is vehemently protesting industrial wind.](#)

(Below is additional information on some of the topics listed above.)

Industrial Wind Turbines Cause Insufficiently Researched Health Effects

- Individuals and communities are collectively reporting the same NOCEBO effects, heart palpitations, ringing in the ears, dizziness, nausea, disorientation, sleep disorders, and other disorders from industrial wind. There is no global conspiracy, there is only a mountain of data (data is when you have enough anecdotes) and similar reports of harm contradicting the narrative that wind is clean, safe and free.
- A growing body of scientific and medical evidence suggests that the health effects on those subjected to long and frequent periods of pulsating, low-frequency noise associated with wind turbines include sleep disturbances leading to depression, chronic stress, migraines, nausea and dizziness, exhaustion and anger, memory loss and cognitive difficulties, cardiac arrhythmias, increased heart rate and blood pressure. Kamperman and James¹ list no fewer than 13 studies that show noise from wind turbines at night can disturb residents more than 2 km away. Those living close to the source of noise can develop what has been termed "Vibroacoustic Disease (VAD). Noise from wind turbines exhibit the characteristics of noise experienced in various occupations (aircrews, aircraft maintenance workers, ship workers and an islander population exposed to environmental infra and low frequency noise) and has been shown to lead to VAD. Complaints from people living near wind turbines are the same as those from persons who have developed VAD.² Also, flicker from turbines at a minimum are disruptive and annoying. Flicker poses a potential risk of photosensitive seizures.³ http://scienceandpublicpolicy.org/images/stories/papers/reprint/trebilcock_wind_power.pdf
- "The annoyance of sight and the heard pulsating wind turbulence creates indirect adverse health effects. This combined with the direct effects of sleep disturbance may activate the body's autonomic nervous system to increase sympathetic-mediated responses with endocrinological consequences...Increasingly activated, risk factors that promote adverse cardiovascular consequences may then promote/facilitate/enhance cardiovascular disease – most easily named as hypertension, arteriosclerosis, ischemic heart disease and stroke."
– **Dr. W. Ben Johnson (cardiologist from the Iowa Heart Center), Testimony (pro-bono) before the Madison County Board of Health, Madison County, Iowa.**
<https://www.masterresource.org/wind-turbine-noise-issues/health-effects-of-wind-turbines-testimony-of-ben-johnson-versus-mid-american-energy-project-in-madison-county-iowa/>
- The Madison County Board of Health passed a resolution recommending a 1.5-mile setback to protect residences from wind turbine nuisances and harms.
- "Sleep disturbance is by far the most common complaint of families living near wind turbines. Prolonged lack of sleep affects our capacity to learn and negatively affects our memory, temperament, heart health, stress levels, and hormones that regulate growth, puberty and fertility. It can also lead to high blood pressure, changes in heart rate, and an increase in heart disease, as well as weight gain and lowered immunity to disease. These symptoms have regularly been reported by individuals who live near IWTs.

In a controlled clinical study, residents who lived within 1.4 kilometers, or 0.87 mile, of IWTs exhibited greater sleep disturbance and poorer mental health than those living at distances greater than 3.3 kilometers, or 2 miles, away, and scores on sleep and mental-health measures correlated well with noise exposure levels. Another study found lower quality of life (QoL) in residents living within 2 kilometers of a turbine installation than at longer distances. Abandonment of homes near wind turbines has been associated primarily with disruptions to sleep and QoL.

Nina Pierpont, MD, PhD^{4}[[4]]MD degree earned from Johns Hopkins and PhD from Princeton[[4]], a practicing pediatrician, coined the term *Wind Turbine Syndrome (WTS)* in 2009 to describe the symptoms she observed in a cohort study of 38 members of 10 families. Those symptoms include: sleep disturbance; headache; Visceral Vibratory Vestibular Disturbance (VVVD); dizziness, vertigo, unsteadiness; tinnitus; ear pressure or pain; external auditory canal sensation; memory and concentration deficits; irritability and anger; and fatigue and loss of motivation. Although her case-series report, published as a book, has often been maligned by the wind industry as

being non-scientific, an increasing body of scientific evidence supports her observations and their links to exposure to wind turbines. Dr. Robert McMurtry, a well-respected Ontario physician, recently proposed specific diagnostic criteria for a case definition of AHEs due to IWTs.” – **Dr. Jerry Punch, Audiologist & Professor Emeritus at Michigan State University** - <https://hearinghealthmatters.org/hearingviews/2014/wind-turbine-noise-evidence-health-problems/>

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3653647/>

¹"Simple guidelines for siting wind turbines to prevent health risks," George W. Kamperman and Richard R. JamesDearborn, *NOISE-CON 2008, Michigan, July 28-31, 2008.*

²"Vibroacoustic disease: Biological effects of infrasound and low-frequency noise explained by mechanotransduction cellular signaling." Mariana Alves-Pereira and Nuno A.A. Castelo Branco, *Progress in Biophysics and Molecular Biology*, (2007) 2 (4): 186-200.

³"Wind turbines, flicker, and photosensitive epilepsy: Characterizing the flashing that may precipitate seizures and optimizing guidelines to prevent them," Graham Harding, Pamela Harding and Arnold Wilkins, *Epilepsia* (2008) 49 (6): 1095-1098.

Other important resources on health risks:

"Wind Turbine Noise and Human Health: A Four-Decade History of Evidence that Wind Turbines Pose Risks"
<https://docs.wind-watch.org/Punch-James-Wind-Turbine-Noise-16-10-21.pdf>

VIDEO - Infrasound: Mariana Alves-Pereira

<https://www.youtube.com/watch?v=2Q7rgDH8M8s&feature=youtu.be&fbclid=IwAR05UaU31S0pBO0811UgMxbT2MRDqigj2fB34Ax33aC1nM2EWUXHEB7RQJ4>

Here are 44 peer-reviewed studies and 19 conference papers that discuss a link between adverse health effects and industrial wind turbines:

http://wiseenergy.org/Energy/Health/Summary_references_wind_turbines_and_health_April_2015.pdf

Here's a link to 480 documents discussing health effects from wind turbines. These documents will lead you to a large number of peer-reviewed research:

<https://www.wind-watch.org/documents/category/health/?titles=on>

Industrial Wind Turbines Reduce Property Values

- Industrial wind turbines REDUCE PROPERTY VALUES. A detailed study conducted by McCann Appraisal, LLC in the Quad Cities area showed a significant reduction in property value up to 2 miles from the nearest turbine.
- "According to our research, an overwhelming majority of Realtors says that wind turbines NEGATIVELY impact PROPERTY VALUE. They estimate the range of impact to be from a 10% price reduction to being completely unsellable."
 - Based on a Wind Impact Study from the Forensic Appraisal Group (WI) who conducted a literature study, opinion study w/realtors and sales studies.
- A three-year study of 600 property sales near the Melancton wind turbine developments north of Shelburne, Ontario showed that property values decreased by 20% to 25% (an average of \$48,000), were on the market more than twice as long as properties in adjacent areas, and a large number (four times those that did sell) could not be sold at any price.[14] While wind developers deny that industrial wind turbines have any effect on property values of neighboring residents, simple common sense suggests otherwise: how many readers familiar with this development would be prepared to buy recreational or retirement homes in this area, even at sharply discounted prices? In a recreational area that promotes its scenic attractions, these effects on property values are likely to be even more pronounced.

- “A study by the RWI - Leibniz Institute for Economic Research shows that wind turbines can lead to falling prices of single-family homes in the immediate vicinity. The value of a house one kilometer away from a wind turbine drops on average by a good 7 percent (and closer to 23%). For the study, the RWI has evaluated almost 3 million sales offers.”
- Here is more evidence that county ordinances allowing industrial wind energy production systems within 1.5 miles of non-participant homes are negatively impacting local home values. This study by economists at the highly regarded London Centre for Economic Policy Research shows decreases in home value due to the presence of industrial wind turbines. From the article:
 "Using detailed data from the Netherlands between 1985-2019, the results show that tall wind turbines have considerably stronger effects on house prices, as compared to small turbines. For example, a tall turbine (>150m) decreases house prices within 2km by 5.4%, while a small turbine (<50m) has an effect of 2% at most and the effect quickly dissipates after 1 Km."

<https://forensic-appraisal.com/wind-turbines>
<https://www.google.com/amp/s/phys.org/news/2019-01-turbines-theyre-property-values.amp>
<http://www.windaction.org/posts/49329-wind-turbines-lower-real-estate-prices-report#.XmFA8SVMGEc>
<http://www.lakeontarioturbines.com/PDF/REValues.pdf>
https://cepr.org/active/publications/discussion_papers/dp.php?dpno=15023&fbclid=IwAR3Vp6L9U0RvpgElk8Kr7ik9_719C_4fENWR6LJfR8ygULvsjuXo3U-4bJU

Industrial Wind Turbines Kill Wildlife and Damage Ecosystems

- Birds (especially predatory & migratory birds) and bats are being killed by the masses from wind turbines and associated infrastructure. This ultimately damages the ecosystem around them.

“The fallout from our birds of prey being reduced is now we have a large rabbit/gopher/rodent population and coyote population, it's out of control!” - Family member from Eastern Colorado

“Wind turbines and their associated infrastructure are one of the fastest-growing threats to birds in the United States and Canada.” - American Bird Conservancy

“At wind power-generating facilities in Appalachia and California, wind turbines have killed large numbers of migratory birds and bats. Wind power facilities may also have other impacts on wildlife through alterations of habitat. Habitat destruction and modification is a leading threat to the continued survival of wildlife species in the United States. ”

— Impacts on Wildlife and Government Responsibilities for Regulating Development and Protecting Wildlife, United States Government Accountability Office, September 2005

<https://wind-power-problems.org/wind-power-environmental-problems/>
<https://abcbirds.org/top-10-myths-wind-energy-birds/>
<https://abcbirds.org/wind-energy-threatens-birds/>

- Below is a portion of a testimony of a bee keeper on how wind turbines are killing our bees. (Remember, bees are essential to ag and our ecosystem!)

“Here's what I saw on my farm:

At the beginning of June 2019, five 145-meter high wind turbines were started around my house, at a distance of 700 meters from my hives. Usually the old queen is pushed by bees and the swarm forms a compact ball just a few meters from the hive. That summer, spin-off didn't happen normally after the start of wind turbines: half of the hive bugs were spread, but they didn't come together, they were like disoriented, it was like you had kick in the swarm. Bees have been laid all over my yard and in our hedge, without creating a new hive.

We need to know that bees have a way of communicating well to them: they talk to each other, especially through vibrations and of to us, between 0 and 500 Hz. This mode of communication is very important, especially between workers and the queen. But when wind turbines more than 100 meters high, these wind turbines release of of the same frequencies and bees can no longer communicate... So, what do we do?

I remind you that bees are crucial to the survival of humanity and that they are already being put to harm by many pollutants. But if we add wind turbines all over the countryside, there will soon be no more beekeepers... nor bees..." - Daniel Dutour

- The evidence is mounting that industrial wind farms are having significant impacts. In 2017, leading bat scientists warned that if wind turbines continued to expand, they would make the hoary bat extinct.

Germany's leading technology assessment research institute published a study last October concluding that industrial wind turbines are causing a "loss of about 1.2 trillion insects of different species per year" which "could be relevant for population stability."

<https://docs.wind-watch.org/Interference-of-Flying-Insects-and-Wind-Parks.pdf>

<https://www.forbes.com/sites/michaelshellenberger/2019/03/28/the-dirty-secret-of-renewables-advocates-is-that-they-protect-fossil-fuel-interests-not-the-climate/#7e0c5a2b1b07>

Industrial Wind Energy Has Very High Costs with Very Low Benefits

- The University of Chicago reported in 2019 that renewable energy mandates "significantly increase average retail electricity prices." Thanks to the heavy deployment of renewables, electricity prices in California between 2011 and 2018 rose seven times more (28%) than they did in the rest of the country (5%), while electricity prices have risen 50% in Germany since 2006. Today, Germany spends nearly twice as much for electricity that produces 10 times more carbon emissions than France. Just 14% of Germany's energy and 35% of its electricity in 2018 came from renewables. And Germany's carbon emissions haven't declined significantly since 2009.
- There was a natural experiment globally, just like there was between Germany and France. Between 1965 and 2018 the world spent \$2.1 trillion to get 31% more electricity from nuclear than it got for the \$2.6 trillion it spent on solar and wind. Nuclear is the only energy source that has proven capable of fully replacing fossil fuels at low-cost in wealthy nations. The underlying problem with solar and wind is that they are too unreliable and energy-dilute. Solar and wind farms require between 400 and 750 times more land than nuclear and natural gas plants.
- *Wind power is good for the environment, right?* On a small, residential scale, yes. However, on an industrial level, wind-generated electricity cannot be stored, creating factors that negate most of the environmental benefits. Environmentalists everywhere are now recognizing that commercial wind development is often more harmful than it is beneficial.
- *But what about global warming?* Because commercial wind turbines need a constant back-up source of power (which most often are the fossil fuel-burning units now in service), they're duplicating rather than replacing electricity. Pollution and CO2 levels aren't reduced, because conventional plants must stay on line, essentially going into a less efficient mode every time the wind blows. In Denmark where almost 20% of their electricity production is wind generated, they consume only a small portion of it and CO2 levels there have recently risen—in spite of thousands of operating turbines.
- *But will it reduce our dependence on foreign oil?* Less than 3% of our electricity is produced using oil. Commercial wind power will have no effect on our need for or consumption of foreign oil.
- *But it's important to diversify, isn't it?* Yes, but wind power has no value when it comes to diversifying because it's not dispatchable, that is, it cannot be dependably called upon when needed since the electricity produced is intermittent and varies with the wind.
- *But electricity will be cheaper, right?* For every wind farm that gets built, our electricity costs will generally go up to cover the increased balancing and transmission costs and the subsidies given to developers, which for the most part are derived through extra fees and charges on our electric bills.

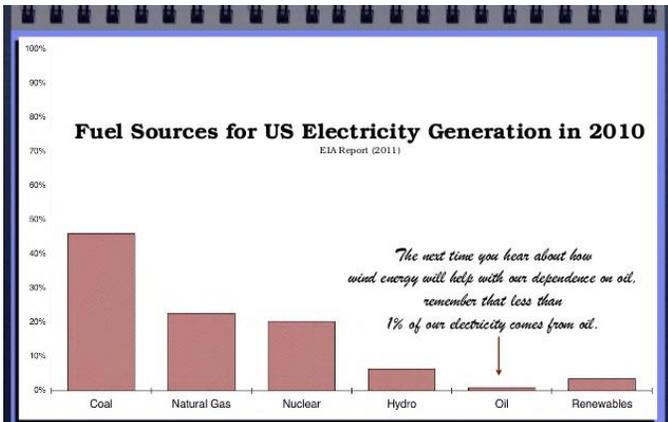
➤ To see the following presentation in its entirety, please visit: <http://energypresentation.info>

The Six Principle Requirements for Commercial Electricity Generating Sources are that:

- 1 - they provide **large amounts** of electricity;
- 2 - they provide **reliable** and **predictable** electricity;
- 3 - they provide **dispatchable*** electricity;
- 4 - they service one or more **grid demand elements****;
- 5 - their facility is **compact*****;
- 6 - they provide **economical** electricity.

* Dispatchable = can generate higher or lower amounts of power on-demand.
 ** Grid Demand Elements = Base Load, Load Following, and Peak Load.
 *** Compact is the ability to site an electrical facility on a relatively small and well-defined footprint, preferably near high demand, e.g. cities.

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Each of the current conventional sources meet ALL of the prior six essential criteria

As a result, **Today — and a Hundred Years** from now — these conventional sources can provide **ALL** of the electrical needs of our society, while continuing to meet **all six criteria**.

Note: We Have ALWAYS Been Energy Independent Here!

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#1 - Does wind energy provide large amounts of electricity?

Yes, it could. However, its **effectiveness** from most perspectives is inferior.

For instance, because of the wide fluctuations of wind, it only produces, on average, about 30% of its rated maximum power.

This issue is compounded by the fact that there is no way to economically store what is produced for later use.

Another example of its dilutedness is that it takes over *one thousand times* the amount of land for wind energy to produce the *approximate* amount of power of a nuclear facility.

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#2 - Does wind energy provide reliable & predictable electricity?

NO. Despite the wind industry's absolute best efforts it is *not* reliable or predictable compared to the standards set by our conventional electrical sources.

A wind turbine's output varies continuously between zero and 100% of its rated capacity, *extremely* sensitive to small changes in wind speed — *and* it only operates in a limited range of wind speed.

Additionally, wind energy is often not available when power is needed most.

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#3 - Does wind energy provide dispatchable electricity?

NO.

Due to its unpredictability, wind can not be counted on to provide power on-demand — in other words, on a **human-defined** schedule of need.

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#4 - Does wind energy dependably provide one or more of the grid demand elements?

NO.

- 1 - All electricity produced must be used **immediately**, as currently there is no way to economically store electricity (and nothing is on the horizon either),
- 2 - The primary job of Grid operators is to provide a **SUPPLY** that exactly meets **DEMAND** on a **second by second** basis,
- 3 - The three types of DEMAND are:
 - a) **Base Load** (what is needed 24/7)
 - b) **Load Following** (normal usage daily changes)
 - c) **Peak Load** (unexpected surges)
 (The next five slides include a basic pictorial representation of these demands.)

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#5 - Is wind energy compact?

NO. To even *approximate* the nameplate power of a conventional facility, like nuclear, takes something like **a thousand times** the amount of area.

"Connecting" multiple wind projects spread over vast areas is a Tinkertoy "solution" which also completely undermines the objective to be a **concentrated** power source.

Another "feature" of wind energy is that most of the windiest sites (and available land) are a **LONG** way from where the electricity is needed.

This will result in **thousands of miles** of huge unsightly transmission towers and cables, at an **enormous** expense to citizens — much of it completely unnecessary.

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6 - Does wind energy provide economical electricity ?

NO, not compared to conventional sources.

We will look at the economics from three (3) perspectives —

- a) **Total Costs** (Capital + Operation/Maintenance + Fuel)
- b) **Taxpayer** funded incentives
- c) **Ratepayer** costs

Note that in **addition** to these there are still more wind energy necessitated expenses (like the cost of a backup power source, the extra transmission lines needed, etc.).

How about looking at it from a Totals perspective...

Some Annual Federal Subsidies

of Electrical Energy Sources: Totals
2013 US Energy Information Administration Subsidy Report: March 2015
(Direct + Tax + R&D + Electricity Support) EIA Table ES4)



Note that the total 2013 subsidies for wind energy exceed the totals for all the other conventional sources COMBINED!

7 - Does wind energy make a consequential reduction of CO₂ ?

NO!

No independent scientific study has ever proven that wind energy saves a meaningful amount of CO₂.

In fact, the most independent scientific study done (by the National Academy of Sciences) says the U.S. CO₂ savings by 2020 will amount to only **1.8%**.

[An EIA report for the US Congress concluded that CO₂ savings would be about **1.3%**.]

These are **trivial** quantities!

[The Bentek study concluded that CO₂ emissions would actually **increase** in many cases.]

Does this sound like a Wise National Electrical Energy Policy?

- 1 - Spend something like a Trillion dollars,
- 2 - Increase utility rates substantially,
- 3 - Cover hundreds of thousands of acres of land with wind turbines,
- 4 - Have a thousand+ miles of new transmission lines, **and**
- 5 - Cause numerous hardships to humans and the environment.

Net Benefit: Save 2%± CO₂

By promoting Wind Energy, this is the path we are currently on...

<https://www.forbes.com/sites/michaelsellenberger/2019/03/28/the-dirty-secret-of-renewables-advocates-is-that-they-protect-fossil-fuel-interests-not-the-climate/#7e0c5a2b1b07>

<https://www.forbes.com/sites/michaelsellenberger/2019/09/04/why-renewables-cant-save-the-climate/#19edae193526>

<https://www.youtube.com/watch?v=N-yALPEpV4w>

MidAmerican Energy Manipulates the Rural Population

Numerous landowners report the same verbiage and tactics used to manipulate them into signing contracts. They're led to believe that everyone else has already signed, so they should follow suit. They are promised that they will be taken care of but are given a complex contract (20+ pages) that is difficult to interpret. These contracts are overwhelmingly in favor of MidAmerican's interests.

Non-participating residents are promised payments if they sign a neighbor easement agreement. This hush clause gives the energy company easement "on, over, under and across all of the Owner's Property to permit Generating Units or other wind energy conversion systems on adjacent property or elsewhere to cast shadows or flicker onto the Owner's Property; impact view or visual effects from the Owner's Property; and cause or emit noise, vibration, air turbulence, wake, and electromagnetic and frequency interference." Essentially, the energy company admits that neighbors within one-half mile (2,640 feet) of a wind turbine will likely be burdened by these effects. By signing the agreement, neighbors have no legal recourse if they encounter harm from wind turbines.

Visit **Protect Our Land's Future – Union County, IA** at <http://protectourlanducia.org/> or find us on Facebook!

You can find many more studies, articles and videos regarding the negative impacts of wind turbines at:

<https://www.wind-watch.org/>

<http://wiseenergy.org/technical-information/>

www.windaction.org

<https://www.youtube.com/watch?v=N-yALPEpV4w>

<https://youtu.be/ywWNx3OJyuo>

<https://www.americanexperiment.org/2019/10/it-costs-532000-to-decommission-a-single-wind-turbine/>

www.wiseenergy.org

<https://www.masterresource.org/category/windpower/>

<http://windfarmrealities.org/>

<https://youtu.be/ZXCZ3OyklrE>

<http://www.na-paw.org/>