

REPORT FOR ANYTOWN, STATE

**Estimated Net Annual
Community Financial Impact
for the Proposed
Encumbrance Wind Project:**

An Annual LOSS of \$4.1± Million

2-20-21

Dear Anytown Board Members:

The primary rationale for the Anytown Town Board's current support of the proposed [Encumbrance](#) industrial wind project (projected to be 100± turbines, each 600± feet tall), is that the developer claimed that this would be a financial windfall for our community.

Clearly such an assertion is self-serving. The only way the Town can make an **informed decision** about the community economics for this wind project, is to fully assess ALL of its local financial **pros and cons**.

In other words, it is the Anytown Town Board's responsibility to perform an **objective and comprehensive** assessment of ALL potential economic impacts to the entire community — *before* giving any approvals to this complex, long-term project. To date, no such assessment has been performed by the Town.

We would hope that such information would be readily available from State agencies. For example, the Dept. of Health should be monitoring wind turbine health effects on State citizens. Similarly for the Departments of Agriculture, Tourism, etc. But for political reasons, no State agency is keeping such data.

Since our local, county and state representatives are not providing this information, concerned citizens have prepared this ballpark analysis.

The estimates presented here are supported by **over 100 sample studies and reports** referenced below. Note that those are typically from **independent experts** — as compared to the material frequently cited by the wind industry. (Additional references on any of the above mentioned issues, are available on request. A superior website to do additional research, is [WiseEnergy.org](#).)

Sincerely,

Concerned Citizens of Anytown

PS — Please contact *Concerned Citizens of Anytown* (at [SaveAnytown.com](#)) for any questions, or to submit well-documented corrections, or to support a balanced economic assessment of this exceptionally important community matter.

Estimated Annual Community Financial Impact for the Proposed *Encumbrance Wind* Project

Subject	Comments	Annual Income/Cost	References
Encumbrance Wind (100± turbines, each 600± feet high)	The community benefits claimed by the wind developer are accepted at face value, even though none are guaranteed.	+ \$2± Million Income from property taxes, lease payments, misc. employment, etc.	Developer's documents & statements
Agricultural Losses Due to Bats	<ul style="list-style-type: none"> • It is well-documented that turbines can kill large numbers of bats. • The main solution the wind industry has is to shut off turbines. • Bats are prodigious insect eaters. An individual bat can consume 1000± insects an hour. • When wind turbines come to a community, the bat population can take a substantial hit. • Decreased bat population means many more insects, which results in a decrease in crop yields. 	— \$2.6± Million <i>Note 1:</i> Bats can travel 100± miles a day, and easily 10± miles from a wind project site. <i>Note 2:</i> A 10 mile radius from the project site (+ site itself) equals roughly 1/3 of our county area.* <i>Note 3:</i> Take mid-range county impact with 80% due to turbines (Reference #2). <i>Note 4:</i> Approximate annual loss: $\$9.8\text{M} \times 33\% \pm \times 80\% \pm = \$2.6\pm \text{M}$	1-5
Agricultural Losses Due to Local Weather Changes	<ul style="list-style-type: none"> • Industrial wind turbines can alter the weather up to 14± miles away. • Temperature and humidity can be adversely affected. • Temperature and humidity changes can lower crop yields. 	— \$.1± Million <i>Note:</i> There are no good numbers for this type of loss (as the NYS Dept. of Agriculture has not monitored or studied this), so this is a low, rough estimate.	6-10
Residential Property Devaluation	<ul style="list-style-type: none"> • This is a major Property Rights issue. • The Town has the obligation to fully protect what is likely its citizens most valuable financial asset. • Due to negative visual impact, residential property value will decline within at least a two mile radius of the project site. • As local property tax revenue is lowered due to lost home values, ALL local property owners will end up paying a higher property tax rate. • Some property abandonment has happened near other wind projects. 	— \$.6± Million <i>Note 1:</i> Based on 850± homes within 2± miles of wind project (based on local RE Broker estimate).** <i>Note 2:</i> Average home value in Anytown is \$140,000± (based on local assessor data). <i>Note 3:</i> Assumes low-end value loss (10%±) = \$14,000±/ home. <i>Note 4:</i> Total property value loss: $850\pm \times \$14\text{k}\pm = \$12\pm \text{M}$ <i>Note 5:</i> Annual loss (averaged over 20± year life of project): $\$12\pm \text{M} / 20\pm = \$.6\pm \text{M}$	11-15
Tourism Reduction	<ul style="list-style-type: none"> • Multiple studies indicate that tourism can decrease in communities with visible industrial wind turbines (esp those that are vacation destinations). • NC State University (a pro-wind source) did a very applicable survey. Their results were that 80%± of tourists would not come back to where turbines are visible (Ref #17). 	— \$2± Million <i>Note 1:</i> Per the State (Ref #16), our county tourism is \$20± M/year. <i>Note 2:</i> 33%+ of our county will see these tall wind turbines.** <i>Note 3:</i> A very low impact of only 30% (<u>vs</u> 80%) is assumed. <i>Note 4:</i> Estimated annual loss: $\$20\pm \text{M} \times 33\% \times 30\% = \$2\pm \text{M}$	16-20

Subject	Comments	Annual Income/Cost	References
Adverse Health Effects	<ul style="list-style-type: none"> •The World Health Organization has gone on record saying that the effects of infrasound can be much worse than those of audible noise. •Some impacts of infrasound and shadow flicker are: cardiac effects, anxiety, sleep disturbances, mental and emotional health decline, etc. •Studies show that these impacts can result in an inability to perform daily tasks, compromised quality of life, and an increased risk of suicide. 	<p>— \$0.2± Million</p> <p><i>Note 1:</i> Not everyone is affected the same way by these health problems — just like not all smokers get cancer.</p> <p><i>Note 2:</i> Human health is priceless, so there is no accurate way to give the full value of wind turbine caused human ailments. Here, a very low, rough estimate was made.</p>	21-30
Hydrogeological Impacts (Drinking water and wells)	<ul style="list-style-type: none"> •Turbine base excavation (which can be over 40 feet deep), and related project construction, has been shown to put water wells at risk. •Some communities have seen dramatic or yet-to-be reversed damage including sediment and contaminants in ground water. •Risk of well water loss, can result in the additional cost to connect more residents to town water. •These seriousness of these issues depends on local aquifer depth, soil percolation, etc. 	<p>— \$0.1± Million</p> <p><i>Note:</i> There are no hard numbers for this type of loss as it is a very localized matter (i.e. dependent on local hydro-geological conditions, quantity of private wells, depth of private and community wells, etc.). This is a conservative, approximate estimate.</p>	31-35
Ecological Impacts, e.g.: Wildlife Ecosystems	<ul style="list-style-type: none"> •Disruption of wildlife (birds, deer, bears, etc.) habitats due to road, power line, etc. fragmentation. •Displacement of animals (e.g. due to tree removal). •Direct negative impact to organisms' environment. •Increased parasitic infections in certain populations (e.g. raccoon). •Permanent soil erosion can impact local species. •A single significant change in an ecosystem can result is a chain reaction that can be irreversible. 	<p>— \$0.2± Million</p> <p><i>Note:</i> This amount of this loss is very dependent on the local terrain, degree of forestation, bodies of water, etc. Since no study has been done locally, this is a low, rough estimate.</p>	36-40
Miscellaneous, e.g.: Agricultural (misc.) Livestock Hunting Communication Military Leaseholders	<ul style="list-style-type: none"> •Loss of employment, plus less seed and equipment, etc., purchases due to reduced farming operations. •Reduction of pollinating insects. •A variety of livestock ailments. •Hunting restrictions and reduced available wildlife. •EMS and communication expenses. •Losses to turbine leaseholders. 	<p>— \$0.3± Million</p> <p><i>Note:</i> This is an approximate, low estimate of the financial consequences of several other possible negative results of this industrial wind project.</p>	41-50
NET TOTAL	Community Net Amount:	— \$4.1± Million per Year	

Sample References for Some Wind Energy Local Economic Impacts

Agriculture and Bats –

1. http://wiseenergy.org/Energy/Wind_Economics/Bats_and_Agriculture.pdf
2. http://wiseenergy.org/Energy/Wind_Other/Bat_County_Data.pdf (agricultural loss by county)
3. https://www.dec.ny.gov/docs/administration_pdf/batsofny.pdf
4. <https://academic.oup.com/jmammal/article/94/2/506/914006>
5. http://wiseenergy.org/Energy/Wind_Economics/Bats_and_Turbines.pdf (Collection of studies, etc.)

Agriculture and Local Weather –

6. <https://www.sciencedirect.com/science/article/pii/S0167610510001467>
7. <https://www.nature.com/articles/nclimate1505>
8. <http://www.co2science.org/articles/V20/aug/a17.php>
9. http://www.atmos.albany.edu/facstaff/mathias/pubs/Slawsky_et_al_2015.pdf
10. <http://iopscience.iop.org/article/10.1088/1748-9326/11/4/044024/>

Residential Property Values –

11. http://wiseenergy.org/Energy/Wind_Economics/Clarkson_Henderson_PV_Study.pdf
12. <http://www.spatial-economics.ac.uk/textonly/SERC/publications/download/sercdp0159.pdf>
13. <https://tinyurl.com/y6cx2k7q>
14. <https://tinyurl.com/y4nhhcq6>
15. http://wiseenergy.org/Energy/Wind_Ordinance/REValues.pdf (Collection of studies, etc.)

Tourism –

16. http://wiseenergy.org/Energy/NY/NYS_Tourism_Data_2017.pdf *{substitute your own data link!}*
17. <https://cenrep.ncsu.edu/2016/04/03/offshore-wind-tourism/>
18. <https://www.sciencedirect.com/science/article/pii/S0301421515300495>
19. <https://tinyurl.com/y5tx4vr9>
20. http://wiseenergy.org/Energy/Wind_Economics/Tourism.pdf (Collection of studies, etc.)

Human Health –

21. <https://asa.scitation.org/doi/pdf/10.1121/2.0000653>
22. https://file.scirp.org/pdf/OALibJ_2018122013570614.pdf
23. <https://tinyurl.com/y2huzqgs>
24. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3653647/>
25. <https://www.intechopen.com/books/acoustics-of-materials/acoustics-and-biological-structures>
26. <https://docs.wind-watch.org/Zou-suicide-2017-Oct.pdf>
27. http://www.waziristan-calc.igsz.de/infra/Weichb_2017.pdf
28. http://www.epaw.org/documents/Wind_Turbine_Noise_Sleep_Health.pdf
29. <https://puc.sd.gov/commission/dockets/electric/2018/EL18-026/prefiledexhibits/davenport/i32.pdf>
30. http://wiseenergy.org/Energy/Health/Sample_Wind_Noise_Studies.pdf (Collection of studies, etc.)

Hydro-geological –

31. <https://tinyurl.com/z2sbyrs>
32. http://wiseenergy.org/Energy/Timbermill/Hydrogeological_Assessment.pdf
33. <http://www.windconcernsontario.ca/wind-turbines-to-blame-for-well-water-problems-hydrogeologist>
34. <https://www.wind-watch.org/news/2017/02/22/could-wind-turbines-taint-area-aquifer>
35. <https://tinyurl.com/1nuzguqe>

Ecological –

36. <https://www.nap.edu/read/11935/chapter/5>
37. <https://wcfm.org/2016/10/02/wind-turbines-effects-on-animals/>
38. <https://www.spectator.co.uk/2013/01/wind-farms-vs-wildlife/>
39. <https://wildlife.org/wp-content/uploads/2014/05/Wind07-2.pdf> (Collection of studies, etc.)
40. <http://npshistory.com/publications/sound/wildlife-noise-bibliography.pdf> (Collection)

Miscellaneous –

41. http://wiseenergy.org/Energy/Wind_Other/Wind&Hunting.pdf (Collection of studies, etc.)
42. http://wiseenergy.org/Energy/Wind_Other/Wind_Energy_Communication_Interference.pdf
43. <https://www.mprnews.org/story/2009/10/15/reimer>
44. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5846843/>
45. <https://www.ncbi.nlm.nih.gov/pubmed/24597302>
46. <https://canadafreepress.com/article/open-letter-windfarms-and-animals-e.g.-birth-defects>
47. <https://greenliving.lovetoknow.com/environmental-issues/effects-clear-cutting>
48. http://wiseenergy.org/Energy/Military/Military-Wind_Overview.pdf
49. http://swkroa.com/docs/wind_energy_speech_6.pdf
50. <http://docs.wind-watch.org/CALT-Legal-Brief-Wind-Energy-Production.pdf>

Note: What needs to be generated is a county map (or larger if needed) that has a sketch of the proposed wind project's boundaries. Around that there should be two lines drawn: **1)** a Blue line that is 10 miles from the project perimeter, and **2)** a Red line that is 2 miles from the project perimeter. It is important to post that map on your website, so that you can link to it here.

Once drawn, do an estimate of what percentage of the county is within the Blue line, and what percentage of the county is within the Red line. Use those estimates to insert percentages in the third column sections of **Agriculture: Bats** and **Tourism** above (page 3).

In this space, show your work, which is part of the official report. Here is a made-up example:

* Per our marked-up map of the proposed wind project ([here](#)), we estimate that a ten mile perimeter takes up approximately 75% of the county's area. This applies to bats and Agriculture

** Per our marked-up map of the proposed wind project ([here](#)), we estimate that a two mile perimeter takes up approximately 20% of the county's area. This applies to Home Devaluation and Tourism.

[If you want to explain how the calculation was done regarding **Residential Property Devaluation**, also do it here. {Take off the green notes (and the one on Reference # 16) before submitting this Report!}]

Explanatory Comments for Local Economic Report Preparers

(Please remove these two pages **before** submitting the Local Economics Report!)

Any group defending citizens' rights is welcome to edit and use this report template. No additional approvals are needed. This report is based on a superior format developed by other good people engaged in the same fight to protect their community from an industry wind energy threat.

As explained in the [Winning](#) page outline of our website, the final objective is to get local legislators to pass the most protective local wind ordinance they are legally allowed to do (e.g. see our [model wind law](#)).

Throughout the country the primary selling tactic used by wind energy developers, is the claim that their proposed wind project will be a **local financial windfall**. Local legislators are understandably naturally inclined to support a business that promises to infuse the local economy with \$1 to \$2 million a year, for 15± years.

The fly in the ointment is that this is just one side of the financial equation. Studies done by numerous independent experts have concluded that an industrial wind project can have up to ten (10) different adverse local financial impacts!

These are enumerated in [Wind Energy: Local Economics 101](#), plus the addendums found on the [Key Documents](#) page, immediately under the "101" document. Make sure to study **both** of those collections of studies *very* closely.

Most citizens make the mistake of arguing against a local project by spelling out some of its adverse consequences (e.g. bird kills, property devaluation, health problems, etc.). The problem with that shotgun approach is that local legislators will dismiss these as being relatively small liabilities — *when compared to the wind developer promised \$1 to \$2 million a year of local benefits*.

The unsurprising result is that local legislators will **not** be inclined to pass any protective wind energy regulations, as that would effectively be looking a gift horse in the mouth — i.e. jeopardizing the claimed \$1 to \$2 million a year of local benefits.

The solution is to combine ALL of the local financial impacts (pro *and* con) into one NET local economics report. Citizens need to generate this, as no one else (local or state) will likely do such an analysis. Legislators will be *much* more inclined to pass a proper protective wind law, **after** they have seen a realistic assessment of the **net local economic impact**. Following the format of this template should do the trick.

Here are answers to questions that have come up from other communities preparing a Report:

1 - What should be the costs involved preparing our Report?

Zero \$. The needed data is free, and is easily obtainable by committed volunteers.

- 2 - How much time should preparing our Report take?
20± total hours of research and compilation by competent local volunteers.
- 3 - How many people are needed to preparing our Report?
One to four competent volunteers have done this in other communities.
- 4 - Is it better to have four people instead of one to prepare our Report?
It depends on the one person's skillset. There are typically three major local economic liabilities (agriculture, real estate, and tourism) so assigning one qualified person to each of those is optimum. The fourth person would put everything together.
- 5 - How accurate do our Report numbers have to be?
Rough approximations. The wind developer's claimed benefits are **estimated** amounts, that are NOT guaranteed. Each of the financial liability categories should be rounded to the nearest \$100k. Don't get hung up on unnecessary details.
- 6 - What parts of the model Report should be changed for our community?
a) Pages 1 & 2: edit as needed. **b) Pages 3 & 4:** **i)** edit row one items as appropriate, **ii)** insert local numbers into column #3, and come up with new subtotals [*please keep a worksheet with the calculations and assumptions here!*], **iii)** few, if any, changes should be made to columns #1, #2, and #4. **c) Pages 5 & 6:** other than updating #16 for your state (and maybe #3), few changes should be made to the references.
- 7 - Will you double-check our Report before we give it to local legislators?
Yes. When you have a finished quality report, please email me the **Word** version (and #6 worksheet), and I'll be glad to look it over and make comments (for free).
- 8 - After we have finalized our professional Report what do we do next?
The Report (a PDF version with clickable links) should be emailed to local legislators, *and* also widely distributed to the **public** and **media**. Meet *in person* with the editor of local newspaper(s) to present them this Report, and explain it in detail. It's also critical that local citizens make this Report the focus of their campaign.
- 9 - When we gave local legislators our Report they objected to the numbers. Now what?
This should be the *expected* response, as your report is severely rocking their boat. No matter what liability numbers are put in your report, wind advocates will still object to them. The answer is: if local representatives don't like the estimates citizens come up with, then they should provide their own *objective* and *comprehensive* **net local financial analysis**.
- 10-Is our Report applicable for dealing with State agencies on our wind project?
No. There are different issues that State agencies are statutorily obliged to follow.
- For questions about this document, or to make suggestions for improvements, please contact physicist John Droz at: "[aaprjohn](mailto:aaprjohn@northnet.org)" @ "[northnet](http://northnet.org)" dot "[org](http://northnet.org)".