

Estimated Annual Community Financial Impact for the Proposed *High Bridge* Wind Project

Subject	Comments	Annual Income/Cost	References
High Bridge Wind*	We are accepting the community benefits claimed by the wind developer at face value — even though none are guaranteed.	+ \$2± Million	
Property Values	<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 one 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 in other areas. 	<p>— \$3± Million</p> <p><i>Note 1:</i> Based on 450± homes within 1± mile of wind project. <i>Note 2:</i> Average home value in Guilford is \$90,000±. <i>Note 3:</i> Assumes low-end value loss (15%± = \$13,500±/ home). <i>Note 4:</i> Total loss property value loss: 450± x \$13.5k± = \$6±M <i>Note 5:</i> Annual loss (averaged over 20± year life of project): \$6±M / 20± = \$300k±</p>	1-5
Agriculture Losses Due to Bats	<ul style="list-style-type: none"> It is well-documented that wind 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 takes a substantial hit. Decreased bat population means many more insects, which results in a decrease in crop yields. 	<p>— \$1.4± Million</p> <p><i>Note 1:</i> Bats can travel 100± miles a day, and 10± miles from wind project site. <i>Note 2:</i> A 10 mile radius from project site center equals roughly 1/3 of Chenango County area. <i>Note 3:</i> Take mid-range county impact & 80% due to turbines (Reference #7). <i>Note 4:</i> Annual loss: \$5.4±M x 80%± x 33%±=\$1.4±M</p>	6-10
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. 	<p>— \$1± Million</p> <p><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.</p>	11-15
Tourism	<ul style="list-style-type: none"> Multiple studies indicate that tourism can decrease in communities with visible industrial wind turbines. A very applicable survey was done by NC State University — as they are strongly pro-wind. Their results were that 80%± of tourists would not come back to where turbines are visible. 	<p>— \$1.7± Million</p> <p><i>Note 1:</i> Per NYS, Chenango County tourism is \$29± Million/year. <i>Note 2:</i> 30%+ of the county will see these tall wind turbines. <i>Note 3:</i> A very low impact of only 20% (<u>vs</u> 80%) is assumed. <i>Note 4:</i> Annual loss: \$29±M x 30% x 20% = \$1.7±M</p>	16-20

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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 more severe 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>— \$.2± Million</p> <p><i>Note 1:</i> Not everyone is affected the same way by these 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. As a result, 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 experienced 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>— \$.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>— \$.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 & communication expenses. Losses to turbine leaseholders. 	<p>— \$.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>	41-55
NET TOTAL	Community Net Amount.	— \$.2.3± Million per Year	

The *High Bridge* Wind Project's NET Annual Community Economic Impact:

An Annual LOSS of \$2.3± Million

The primary rationale for the Guilford Town Board's current support of the proposed High Bridge* industrial wind project, is that the wind developer claimed that this would be a financial windfall to our community.

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

In other words, it is the Guilford 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 and similarly for the Departments of Agriculture, Tourism, etc. However, for political reasons, no State agency is keeping such data.

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

The estimates presented above are supported by the 55± 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 are available upon request).

Please contact *Concerned Neighbors of Guilford* (at SaveGuilford.com) to learn more or for any questions, (or to submit well-documented corrections, or to support a balanced economic assessment of this exceptionally important community matter).

6.2.19

Sample Reference Documents for Some Wind Energy Impacts

Property Values –

1. <https://www.nanos.co/wp-content/uploads/2017/07/April-4-Exploring-the-impact-of-the-proposed-Galloo-Island-energy-project-Copy.pdf> (link to full report on page)
2. http://www.rwi-essen.de/media/content/pages/publikationen/ruhr-economic-papers/rep_18_791.pdf
3. <https://www.dailymail.co.uk/news/article-2546042/Proof-wind-turbines-thousands-home-value-homes-1-2-miles-wind-farms-slashed-11-cent-study-finds.html>
4. <http://www.spataleconomics.ac.uk/textonly/SERC/publications/download/sercdp0159.pdf> (Full London School of Economics Report)
5. http://wiseenergy.org/Energy/Wind_Ordinance/REValues.pdf (Collection of studies, etc.)

Agriculture and Bats –

6. https://www.dec.ny.gov/docs/administration_pdf/batsofny.pdf
7. <https://www.nature.com/articles/srep34585>
8. http://wiseenergy.org/Energy/Bat_County_Data.pdf
9. <https://academic.oup.com/jmammal/article/94/2/506/914006>
10. http://wiseenergy.org/Energy/Wind_Economics/Bats_and_Turbines.pdf (Collection of studies, etc.)

Agriculture and Local Weather –

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

Tourism –

16. http://wiseenergy.org/Energy/NY/NYS_Tourism_Data_2017.pdf
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)

Human Health –

21. <https://asa.scitation.org/doi/pdf/10.1121/2.0000653>
22. https://file.scirp.org/pdf/OALibJ_2018122013570614.pdf
23. https://www.researchgate.net/publication/254080437_Wind_Turbines_Make_Waves_Why_Some_Residents_Near_Wind_Turbines_Become_Ill
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. http://wiseenergy.org/Energy/Health/Sample_Wind_Noise_Studies.pdf
30. <https://puc.sd.gov/commission/dockets/electric/2018/EL18-026/prefiledexhibits/davenport/i32.pdf>

Hydro-geological –

31. <https://torontosun.com/2017/09/11/concern-that-wind-turbines-are-polluting-ground-water/wcm/40c126e3-941e-41e3-b1b2-f4bfc2613ed6>
32. <https://www.cbc.ca/news/canada/windsor/well-water-chatham-kent-investigation-sediment-1.4836497>
33. <http://www.windconcernsontario.ca/wind-turbines-to-blame-for-well-water-problems-hydrogeologist>
34. <http://windeis.anl.gov/documents/fpeis/maintext/vol1/vol1ch5.pdf>
35. <https://vermontersforacleanenvironment.wordpress.com/2016/08/05/vces-investigation-into-the-environmental-health-of-the-lowell-mountains-with-industrial-wind-turbines-july-2016/>

Ecological –

36. <https://www.nap.edu/read/11935/chapter/5#124>
37. <https://wildlife.org/wp-content/uploads/2014/05/Wind07-2.pdf> (Collection)
38. <https://wcfm.org/2016/10/02/wind-turbines-effects-on-animals/>
39. <https://www.spectator.co.uk/2013/01/wind-farms-vs-wildlife/>
40. <http://npshistory.com/publications/sound/wildlife-noise-bibliography.pdf> (Collection)

Miscellaneous –

41. http://wiseenergy.org/Energy/Wind_Other/Wind_Energy_Communication_Interference.pdf
42. http://swkroa.com/docs/wind_energy_speech_6.pdf
43. <http://docs.wind-watch.org/CALT-Legal-Brief-Wind-Energy-Production.pdf>
44. <https://www.mprnews.org/story/2009/10/15/reimer>
45. <https://www.ncbi.nlm.nih.gov/pubmed/24597302>
46. <https://greenliving.lovetoknow.com/environmental-issues/effects-clear-cutting>
47. http://wiseenergy.org/Energy/Wind_Other/Wind&Agriculture.pdf
48. http://www.garyabraham.com/files/wind/WIND_ENERGY.NY_Zoning_and_Planning_Law_Rep4.pdf
49. https://www.dec.ny.gov/docs/administration_pdf/batsofny.pdf
50. <https://journals.sagepub.com/doi/10.1177/0270467611417852>
51. http://mars.gmu.edu/jspui/bitstream/handle/1920/7878/Walsh-Thomas_thesis_2012.pdf;jsessionid=46AA1FE4B203AF970B57E5698F208033?sequence=1
52. <https://www.windpowerengineering.com/construction/what-an-electromagnetic-impact-analysis-should-reveal-before-wind-farm-construction-begins/>
53. https://www.ofcom.org.uk/__data/assets/pdf_file/0026/63494/tall_structures.pdf
54. <https://www.sciencedirect.com/science/article/pii/S1364032114000100>
55. <http://wiseenergy.org/>

* For information about the *High Bridge* wind project see: <<http://www.calpine.com/highbridgewind>>.