

Critique of  
The Real Truth About Wind Energy  
An Analysis of the Potential Impacts of Wind Turbine Development in Ontario  
Produced by the Sierra Club of Canada  
May 2011, updated June 2011

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### Background

The Sierra Club of Canada (SC) has long been a vocal opponent of nuclear and fossil fuel electricity generation. This stance has left them with a problem: assuming they don't want to return to the living standards of the 19<sup>th</sup> century, exactly how will we generate the energy we need for our modern economy? Their answer is to aggressively promote renewable technologies – and since they don't much like hydro either this ends up being solar or wind. They were an early and fervent supporter of Ontario's Green Energy Act, which set up the framework to install and pay for large amounts of renewable energy. As the Ontario government has placed some of the resulting wind projects in Important Bird Areas, executive director John Bennett has come under increasing criticism for his apparent indifference to the inevitable deaths and destruction of habitat of some of Ontario's iconic and even endangered species.

In response to his critics he gave a couple of interns the task of writing a report to buttress his support of wind energy. This report features prominently on the SC's home page:

The screenshot shows the Sierra Club Canada website. At the top left is the logo with a tree and the text 'SIERRA CLUB CANADA'. To the right is a 'Make a difference Donate today' button. Below the logo is a navigation menu with 'Media', 'Campaigns', 'Get Involved', 'Chapters', 'About Us', and 'JOIN US!'. The main banner features a wind turbine and the text 'Get the real truth about wind energy ... click here'. Below this is a section titled 'Get the real truth about wind energy!' with a link to 'Read the new report from Sierra Club Canada'. The page is divided into 'Media Releases' and 'Blog Posts' columns. The 'Media Releases' column has three items: 'International Day of Action Against the Tar Sands will see Anti-Tar Sands Events Held Across the Globe', 'Federal Government Needs to Establish Joint Review Panel on Oil and Gas in the Gulf of St. Lawrence', and 'Canadian Nuclear Safety Commission Denied Intervention in Judicial Review of its Steam Generators Shipping Decision'. The 'Blog Posts' column has two items: 'What is International Stop the Tar Sands Day?' and 'Take a Pic, Stop the Tar Sands!'. On the right side, there is a 'Connect with us...' section with social media icons, a 'Sign Up and Get Involved' section with an email form, and a 'Search this site:' section with a search box and a 'Login' link.

The SC is also collecting donations to start the following ad campaign:

**Help us place this Ad in papers across rural Ontario!**  
Text the word SIERRA to 45678 to make a \$10 donation. Do it twice to donate \$20.  
You can also make a secure donation [online here](#).

**Visit our website and get  
the REAL truth about  
wind energy!**

*"Unlike coal plants  
and nuclear reactors,  
properly located  
wind turbines present  
no significant health or  
environmental hazards."*

**www.SierraClub.ca**  
**1-888-810-4204**



In addition Bennett's been out stumping Ontario for this Report. As an example, from near Napanee: <http://www.thewhig.com/ArticleDisplay.aspx?e=3194057&#postbox> with <http://windfarmrealities.org/wfr-docs/whig-article-110630.pdf> as a backup.

## **The Quick Summary**

The Report “encourages anyone with interest to seek [the references] out...” and I decided to do just that. There are a total of 61 references cited in the report and another 13 works consulted. I’ve located all of those that were of interest (not everything they wrote was important and/or controversial), read through them, and tried to get a sense of just how justified the Report’s conclusions were.

The Report itself (a pdf, about 1.3MB) is available from the Sierra Club at: [http://www.sierraclub.ca/sites/sierraclub.ca/files/wind\\_report\\_0.pdf](http://www.sierraclub.ca/sites/sierraclub.ca/files/wind_report_0.pdf) with a backup at <http://windfarmrealities.org/wfr-docs/sierra-club-wind-energy-report-v1-2011.pdf>

It runs 44 pages including all the typical addenda and is a well-written review of the major issues concerning wind energy – from a proponent’s perspective. When searching for the “Real Truth” you’d think a researcher would look at and use references from both sides of an issue, and use those references to form his ideas. I’m pretty familiar with most of the studies opponents use to make their points. Out of the total of 61 cited references NONE were from a source that was critical of the wind industry, and only 1 (Salt) was found among the 13 additional.

So right away this was not an honest attempt to determine any Real Truth. Like every one of the proponent studies I’ve critiqued before, they started with a certain point-of-view and then found references to support that position. The bulk of references used here contain assertions, unsupported by any actual evidence, from proponent-friendly sources, many of which have a political or economic stake in the wind energy industry. The few references that are from disinterested parties uniformly have their conclusions stretched to the breaking point to support the proponents’ perspective.

Like Bennett, I encourage you to read through the Report and follow the references to see if this Report presents the Truth, the Real Truth, or any plausible version of the Truth.

## Some Administrative Trivia

Before I get into the grueling details let me cover how this critique was put together. I read through the Report and noted 51 passages that are representative of the problem areas of the Report. I created a modified copy of the Report with these passages marked in red, and it would probably be easiest to view both this critique and the modified report alongside each other. The modified Report is at: <http://windfarmrealities.org/wfr-docs/sierra-club-wind-energy-report-v1-modified-2011.pdf> . Unfortunately, between the conversions into and out of Word, the size grew from 1.3MB to 5.6MB. This way you can see if I've taken anything out of context.

In the next section, "Grueling Details" I'll go through each passage and explain why I have problems with it, or in some case just want to comment. Someone would really have to be a glutton for punishment to go through all 51. In lieu of that, how about picking a few that seem interesting, then read them and follow through to the references to see if I've misrepresented anything. Do that a couple of times and you'll have a pretty good idea of this Report's value.

Along with reading the Report itself I also collected and read the most important of the Report's references. To make it easier for my readers I've noted problems with the links they supplied, supplied current links where needed and gathered a set of backup copies – all these links are at the bottom of this critique, in the "Report's Cited References" section. I spent a lot of time getting all these links and backup copies together. Unlike the Sierra Club I want to make it as easy as I can for my readers to take a look at the references they used and how they are used, so they can discover for themselves just how careless with the truth this report is.

The June 2011 Report is its second version, released only a month after the first. It is quite a bit larger with 61 cited references in place of the original 42; 44 pages in place of the original 37. Much of the new report is unchanged from the old, but there have been four new "sections" added: the Ontario FIT program, bats, prevention/mitigation and social separation.

One sentence that was removed from the first version was "We have further found, the research being used by opponents of wind to be either poorly interpreted or anecdotal at best." In the first place it was interesting that they found this, seeing as they hadn't (and still haven't) cited any "research being used by opponents..." Wouldn't you think, if you accused your opponents of shabby research, you'd document where the shabbiness was? Or, when filled with the righteousness of the renewable religion, is fair play not required? In the second place, I wonder why they removed it.

## The Grueling Details

#1 (p.4) **After a thorough review of the science we are confident in saying there is no evidence of significant health effects**

This is demonstrably untrue. Any thorough review of evidence would have included references like Harry, Pierpont and Nissenbaum, unless you dismissed them out-of-hand since they didn't fit your agenda. You might try to re-define the word "evidence" to mean just peer-reviewed journal-published data, but even that doesn't work:

[http://windfarmrealities.org/wfr-docs/Health\\_Canada\\_Nova\\_Scotia.pdf](http://windfarmrealities.org/wfr-docs/Health_Canada_Nova_Scotia.pdf)

#2 (p.4) **With a full review of available data, including that referenced by wind opposition groups**

This is demonstrably untrue. If the SC reviewed any data reference by wind opposition groups it is not reflected in this report. You can't just say you reviewed and dismissed that kind of data without specifying exactly what you did review and why you dismissed it. Here's a sample of the sort of presumably dismissed data I'm referring to:

<http://windfarmrealities.org/wfr-docs/krough-compilation-2011.pdf>

#3 (p.4) **a link between well-sited wind turbines and health concerns is unfounded**

Many proponents fall back on the "well-sited" excuse – so if a project causes problems, it's not because the technology is incredibly intrusive. Rather, it wasn't well-sited. This argument would be stronger if they ever opposed a badly-sited project before it was built.

#4 (p.5) **This literature review**

At least the SC had the grace to call this what it is – a literature review. Unfortunately, literature reviews are supposed to be reasonably exhaustive, and this was hardly that. 61 highly-selected references for all these issues is not exhaustive.

#5 (p.7) **Anthropogenic climate change is now a well documented phenomenon**

Curiously, I generally agree with this. We do need to quit burning every bit of hydrocarbon we can find. Which is why I'm against wind turbines. They do an incredible amount of environmental, social and financial damage and adding insult to injury haven't even demonstrated where they've ever cut any emissions. They are an expensive diversion and when discovered as such they will make the tough political decisions that must be made even tougher.

#6 (p.9) **every 1 MWh of electricity generated by a wind turbine equates to a reduction of 0.8-0.9 t in greenhouse gas emissions when compared to a power plant producing electricity from either coal or diesel (Statistics Canada, 2009)**

This one is really a mess. Statistics Canada itself knows nothing about GHG emission reductions, so where did they get this information? The above quote is contained in section 1.4.4 on p.47, and, sure enough, refers us to NRCan (ref#68). Unfortunately, the trail stops here. The link rolls you over to CanmetENERGY, where you can search, but I cannot find the referenced document. This sort of thing is typical of sloppy research. Instead of tracking down the references to see if there's anything more than a chain of assertions (or broken links), researchers-with-an-agenda generally just grab the first one

that sounds good and run with it. Perhaps they are betting that nobody important will ever actually read their report and follow the references. Sadly, this is usually a pretty good bet. In this particular case it gets worse. SC used the 2007/2008 statistics report when the 2009 report was available. Why? Because the 2009 report makes no mention of any wind emissions savings at all. This is also typical of these reviews – find what sounds good and go on, never minding if it has any real basis, or if it is still supported.

So what is the real answer to this most important of questions? The sad answer is that nobody really knows, and that certainly includes the Sierra Club. Plus it varies greatly grid by grid, with Ontario's being particularly ill-suited. For a real introduction see: <http://windfarmrealities.org/?p=20> and for more meat go to <http://www.masterresource.org/category/windpower/emissions-reduction-wind/>

#7 (p.10) **The strictest standards in North America are already in place in Ontario for the protection of citizens from any potential harm due to wind turbines (MOE, 2011).**

This is demonstrably untrue. There are larger setbacks and lower noise limits in various jurisdictions, especially for property line setbacks. See:

[http://windfarmrealities.org/wfr-docs/swv\\_symposium\\_presentation\\_no\\_global\\_standards.pdf](http://windfarmrealities.org/wfr-docs/swv_symposium_presentation_no_global_standards.pdf)

#8 (p.10) **These regulations were put in place with the intention of eliminating any disturbing noise from wind turbines by keeping sound levels below 40dBA in all nearby residences. They are also designed to provide adequate distance to avoid any damage or injury due to malfunction, regular maintenance or blade icing**

Both of these assertions are demonstrably untrue. Ontario's noise limits are set by the MOE Interpretation, at <http://windfarmrealities.org/wfr-docs/moeinterpretation.pdf>. In Table 1, page 6 you can see that the max dBA is as high as 51, depending on the wind speed. The theory is that the noise from the wind will "mask" the noise of the turbine. With smaller turbines that may work ok, but with the new larger turbines, which produce more low-frequency sounds, it doesn't. Worldwide, only Ontario still permits this masking exemption. Petersen (2008) reported "*The studies show that the sound levels vary at the same wind speed, and that wind turbine sound could still be heard at wind speeds when it should be masked by other wind-induced sounds.*" Larger turbine link: <http://windconcernsontario.wordpress.com/2011/06/24/new-danish-study-backs-wind-turbine-noise-complaints/>

The Ontario safety setback is blade length + 10 m, or about 60 m total. However, King (2010) reports that "*Sizable ice fragments have been reported to be found within 100 metres of the wind turbine*" and "*The maximum reported throw distance in documented turbine blade failure is 150 metres for an entire blade, and 500 metres for a blade fragment.*" So exactly how is 60 m sufficient to protect the public? Copes (2010), p.1 says setbacks of 200 to 500 m can minimize risks. The Province is simply playing the odds, gambling with public safety, apparently with the SC's blessing.

#9 (p.12) **Figure 3: Typical Sound Pressure Levels (Colby et al, 2009, p.12)**

First off, there's no page 12 in Colby (2009). It is really Table 3-1 on p.3-2. What was that chart based on? Colby refers us to

[http://www.dec.ny.gov/docs/permits\\_ej\\_operations\\_pdf/noise2000.pdf](http://www.dec.ny.gov/docs/permits_ej_operations_pdf/noise2000.pdf) and sure enough

there's a similar chart on p.19 of that report. And where did they get their information from? Something called the "aggregate handbook", published in 1991. The chart isn't controversial, so why am I even bringing this up? Just that it shows sloppiness. SC could just as easily have found a chart that didn't ultimately rely on a 1991 handbook.

#10 (p.12) **somewhere between the quiet of a bedroom and a calm house.**

Technically, I suppose a turbine's 45 dBA is between the 25 dBA of a quiet bedroom and the 50 dBA of a calm house. But it is misleading, and I think intentionally so – an honest statement would find a halfway point. Further, how does the SC know a turbine actually falls at 45 dBA? And at what distance? 45 dBA is a common number from proponents, usually at 350 m, but they seldom mention that the 45 dBA is a modeled number, not a measured one. If you want a measured one, try this:

<http://windfarmrealities.org/wfr-docs/ashbee-measurements.pdf>

#11 (p.13) **It is understood that sound below the threshold of hearing has little if any effect on people**

I read over their reference, Howe (2006, p.5) very closely and the only statement that came close to the above was "*In summary, there is no evidence to suggest that infrasound from wind turbines cause issues with respect to human perception or health.*" That isn't quite what the SC said he said. Plus Howe is an acoustician, not a medical doctor or researcher. According to other acousticians wind turbines are unique-enough that in some circumstances they just might be a problem, see:

<http://windfarmrealities.org/?p=962>

#12 (p.14) **This sound level is generally in the audible range (1000 to 20 000 Hz) and diminishes with distance: no more than 50dBA at 350 metres, and not exceeding 40dBA at 500 metres (Rideout, 2009).**

I checked their reference and nowhere does Rideout (2009) specify wind turbine noise emissions vs. distance. Maybe they meant Copes (2010) – it's easy to get these confused. Regardless, how does Rideout or Copes know this to be true? Almost certainly they got their numbers from the industry, who in turn used computer models run by friends to generate them. The actual levels, in some fairly common circumstances, can be higher, much higher: <http://windfarmrealities.org/wfr-docs/ashbee-measurements.pdf>

#13 (p.14) **It is generally accepted that in order for a noise to be audible and noticeable it must exceed the background noise of a given environment by approximately 5dBA (Rogers, 2006)**

I checked their reference and I can't find where Rogers makes the above statement. About as close as he comes (p.6) is "*A change in sound level of 5 dB will typically result in a noticeable community response.*" and there's also "*Outside of the laboratory, a 3 dB change in sound level is considered a barely discernible difference.*" On page 20 he cautions "*It should be remembered that average sound pressure measurements might not indicate when a sound is detectable by a listener. Just as a dog's barking can be heard through other sounds, sounds with particular frequencies or an identifiable pattern may be heard through background sounds that is otherwise loud enough to mask those sounds.*" So much for masking, as per passage #8 above.

#14 (p.15) **In this situation, in buildings located at the minimum mandated set back distance, most people would be able to hear the wind turbines, but annoyance would be minimal (Rogers, 2006)**

I looked through Rogers for quite a while and I couldn't find anything even close to this. Curious about this disconnect, I checked the first version of this report, and lo and behold, I find the exact wording, albeit without the Rogers attribution. You'd think that in a real literature review that the ideas would flow from the literature to the report. In this case, and with #13 above, it seems that the SC started with the ideas and went looking for affirmation from otherwise reputable sources – and the Rogers paper, being quite good within its scope, is widely quoted. I'm sure they were betting that nobody would bother checking it out, but in this case they lost the bet. In a college class, they would have just failed the course.

As an additional thought, one wonders who should be the judge of what “minimal” consists of.

#15 (p.15) **These studies were done on wind farms where houses were found within visual distance of wind turbines.**

This is a trivial point, but it shows sloppiness. Both Swedish studies that Pedersen ran used a 30 dBA cutoff for their study areas. From Pedersen 2010, p.16, “...each household that were exposed to 30 dB(A) or more from the wind turbines.”

#16 (p.15) **For our purposes we will look at the groups around the limits in Ontario** They're referring to the groups around 40 dBA, the presumed Ontario limit. Except that the Ontario limit is really 51 dBA, depending on wind speed.

#17 (p.15) **By maintaining the limit of 40 dBA most people will hear the sound of a wind turbine, but very few if any will be annoyed and there are no negative health effects (Pederson, 2008).**

I've looked closely at the equivalence of Pedersen's studies to Ontario's situation, and using her results in Ontario is invalid. For more details, please see:

<http://windfarmrealities.org/?p=1201>

#18 (p.15) **The same study found an interesting correlation between those who benefited financially from windmills and reduced perception/annoyance levels even with closer proximity and higher sound levels.**

While they don't explicitly say so, their clear intent is to convey the idea that money will make the annoyance go away, ergo the annoyance isn't real to begin with. What they don't consider is that maybe, just maybe, there's some third factor at play. In Pedersen 2008, p.56 there's this quote: “Respondents that benefit will more usually have control: most or all of them have taken part in the decision to put up the turbines and they can stop them if they want. One respondent remarked that if a turbine close by caused too much noise for him or his neighbour, **he stopped the turbine.**” [My emphasis]



Because most of the benefiteres lived closer to the turbines, this ability to control the turbines also skewed the annoyance measures of the loudest categories, per section 7.3.2 on p.31. To apply the results of this study to Ontario is dishonest.

And being able to control your environment is what your home is all about, isn't it?

#19 (p.15) **It also found that those who did not like windmills to begin with, or who found them to be unattractive were more likely to notice and be annoyed by the sound of the wind turbines (Pedersen, 2008).**

The way the SC wrote it, the attitude caused the annoyance. This is incorrect. From Pedersen 2008 p.45 there's this: "*Other factors, such as attitude, are more ambiguous; we do not know if the attitude has an influence on annoyance or if annoyance leads to a negative attitude. The statistical tests can only show whether there is a relationship between attitude and annoyance, not which one is the cause and which one the effect.*" The SC has made the basic error of confusing correlation with causation. Pedersen 2010 is even more adamant about making this error, per the bottom of p.24.

#20 (p.15) **Several studies have similar findings, showing perception and annoyance occurring around the 40dBA threshold, the limit set by the Ontario government**

By "several studies" I assume they mean the two Pedersen studies in Sweden and the VandenBerg/Pedersen study in the Netherlands. None of these studies are even very close to duplicating Ontario's situation. See passages #17 and #18 above.

#21 (p.16) **In the case of wind farms however, several peer-reviewed articles conclude that infrasound is inaudible and thus has no noticeable effect on people (Colby, 2009)(Howe, 2006).**

This is a commonly-expressed theme among proponents: if you can't hear it, it can't affect you. This is nonsense, akin to saying if you can't see it, it can't affect you. Never mind radiation or even sunburn. The Salt (2010) paper put an end to this nonsense, but even though the SC included his work in the supplementals, the importance of his work didn't filter through to the Report's conclusions. For a presentation of his findings, see: [http://windfarmrealities.org/wfr-docs/swv\\_symposium\\_presentation\\_infrasound\\_your\\_ears\\_hear\\_it\\_2.pdf](http://windfarmrealities.org/wfr-docs/swv_symposium_presentation_infrasound_your_ears_hear_it_2.pdf) and I've got a copy of the 2010 paper if you need it.

#22 (p.16) **"Specific International studies, which have measured the levels of infrasound in the vicinity of operational wind farms, indicate that levels are significantly below recognized perception thresholds and are therefore not detectable to humans."(Sonus Pty Ltd. 2010)**

Sound, especially infrasound, travels in strange ways sometimes. What you never see published are measurements in a home where people are complaining or have abandoned. For the "not detectable" idea, see passage #21 above. Except the Ashbee numbers from #12 above, which slipped out by accident.

#23 (p.17) **Additionally, there is no evidence of adverse health effects due to infrasound from wind turbines. (Howe, 2006, p.11)**

The above quote was actually on Howe's page 8; its PDF page number happens to be 11.

I'll restate that Howe is not a medical doctor, and the evidence he has looked at is also not from medical doctors. He's making an acoustician's assumption - that what you cannot hear cannot harm you.

#24 (p.17) **This annoyance may cause sporadic waking throughout the night, though no effects beyond this are seen to be the results of wind turbine noise (Copes, no date).**

Assuming I've got the right Copes reference (their link is incorrect), the closest to the above I can find is from his conclusions, slide #41, "*No evidence of noise-induced health effects at levels emitted by wind turbines.*" What the SC left out was several other conclusions, such as "*Health concerns are valid and must be addressed.*" and "*Any effects on health more likely related to annoyance/sleep disturbance than to direct effect of SPLs at residence.*"

This is similar to the "direct" effects that Colby and King talk about. Just because the noise doesn't itself cause damage (and that's still up for discussion, i.e. Salt and Pierpont) they must think it is ok to stress, annoy and disturb the residents so much that their health becomes an issue. Copes and Rideout themselves have commented on this issue as well: <http://windfarmrealities.org/wfr-docs/rideout-copes-statement.pdf>

#25 (p.17) **Several publications have linked the negative perspective toward wind turbines with adverse reactions to sound: those who don't like wind farms, or the look of wind turbines tend to notice and be annoyed by the sound of windmills significantly more than anyone else (King, 2010).**

The SC is simply repeating King, who in turn is simply repeating Pedersen. And Pedersen's studies simply don't much apply to Ontario, for reasons contained in passage #19 above. Plus notice the use of the word "link". They are implying causation when Pedersen herself has explicitly said not to.

#26 (p.17) **Though both of these distances are well below Ontario's setback regulations** This is demonstrably incorrect. 250 m is NOT below the ~60 m safety setback. King seems to not understand Ontario's actual regulations, and the SC has aped her misunderstanding.

#27 (p.18) **With the sun in the background, large moving shadows can be produced which some people may find distasteful**

"Distasteful"? I can think of a lot of adjectives to describe flicker, but distasteful is not among them. I've never experienced it myself, but people who have say it is very disturbing, sometimes forcing them out of the affected rooms. Here's a link to some videos, take a look and see what you think:

<http://www.wind-watch.org/video-wisconsin.php>

#28 (p.19) **This effect can however be prevented with proper placement of wind turbines to avoid the particular setup necessary to create this effect.**

This is technically correct, except that Ontario has no regulation regarding flicker, and asking the developer to voluntarily go out of his way and decrease his profits to help the neighbors is naïve.

#29 (p.19) **First, as wind turbines are 80 to 100 metres above the ground the EMF created by the production of energy is generally well above any people who may be in the area.**

First, presently there is NO production of electricity in these areas, and the highest existing voltages and currents are much less than what a wind project creates. Generally the existing infrastructure isn't designed to handle these loads. Second, the EMF problems I've read about don't spread through the air, but rather through the inadequate wires, so their point about how far away the generator itself is isn't important. For some pictures of what a nearby project can do to the waveforms go to

<http://www.dirtyelectricity.ca/wind%20turbines.htm>

#30 (p.19) **This report states that in 2008, air pollution was responsible for 21,000 deaths in Canada (CMA, 2008, p.iii). 90,000 people will have died from acute effects and 710,000 will have died from long-term exposure to air pollution by 2031, with the highest number of deaths from acute exposure in Quebec and Ontario (CMA, 2008, p.iii). In 2008 air pollution was responsible for 620,000 visits to doctors offices, and 92,000 emergency room visits, while these numbers are expected to rise to 940,000 and 152,000 respectively in 2031 (CMA, 2008, p.iii).**

These numbers are presented as facts in the "At a Glance" section of the cited reference. What isn't apparent is that nobody ever actually checked any records to see if these "facts" were accurate. Instead, they were generated with computer models, as specified in the longer technical report, available at:

[http://www.cma.ca/multimedia/CMA/Content/Images/Inside\\_cma/Office\\_Public\\_Health/ICAP/CMAICAPTec\\_e-29aug.pdf](http://www.cma.ca/multimedia/CMA/Content/Images/Inside_cma/Office_Public_Health/ICAP/CMAICAPTec_e-29aug.pdf)

Dr. Ross McKittrick has analyzed these models and the history of Ontario's air pollution and has summed up his findings in this presentation:

[http://windfarmrealities.org/wfr-docs/swv\\_symposium\\_presentation\\_where\\_are\\_the\\_bodies.pdf](http://windfarmrealities.org/wfr-docs/swv_symposium_presentation_where_are_the_bodies.pdf)

In short, he found that the models are faulty. In addition, Ontario's pollution problems are already pretty much as fixed as Ontario can fix them. Wind will do nothing to improve anything. In fact, according to measurements by Bentek, wind will make things worse: <http://windfarmrealities.org/wfr-docs/bentek-less-became-more.pdf>

#31 (p.20) **The capacity factor for renewable energy falls within the range of conventional generation techniques and indeed has a higher capacity factor than hydroelectric generation**

This is disingenuous. Capacity factor is not the critical difference – dispatchability is. Nobody pretends that wind energy is dispatchable. The other fossil fuels may have lower capacity factors because the system operator (the IESO) CHOOSES to use them sparingly. Not so with wind and solar.

#32 (p.20) **Renewable (Solar, Wind, Biomass) - 40%**

Ontario's experience is that the annual Capacity Factor for wind is typically between 25 and 30%, most of it coming when it isn't needed.

#33 (p.20) **While wind speed can vary, it "can be quite accurately forecast in the appropriate timeframes for balancing electrical supply" (Sustainable Development Commission, 2005, p.22).**

The above quote is merely an assertion, with nothing to back it up. Returning to the real world, the Bonneville Power Authority (BPA) publishes its forecasts and actual production. So far their real-world experience hasn't been so good, as detailed at: <http://windfarmrealities.org/?p=362> where the only time the forecasts are accurate is when there's no wind.

#34 (p.23) **The development of wind energy in Europe has created many new jobs**

What is left off is how many jobs were destroyed by higher energy prices. For each "green job" produced, the following numbers of jobs were destroyed:

England, 3.7, Spain: 2.2, Italy: ~6, the list goes on;

<http://www.instituteforenergyresearch.org/2011/05/09/the-wind-experience/>

#35 (p.23) **It has been estimated that if the environmental externalities associated with generating electricity from fossil fuels was included in their cost, the price of electricity generated from coal and oil would double, and the cost of electricity generated from gas would rise 30% (EWEA, [No date], p.6)**

This assertion is from the European Wind Energy Association, an industry lobbyist. Why something from a lobbyist is included in a report claiming to portray the "Real Truth" escapes me. EWEA, in turn, got this assertion from an EC-supported study group called ExternE, at <http://www.externe.info/>. And how did ExternE calculate their numbers? You'll have to dig that one out yourself if you care enough. Judging from some of the language from their home page, "societal welfare principles" and "intended as a strategy to rebalance the social and environmental dimension." I suspect they wouldn't get much of a reception in North America.

#36 (p.23) **If subsidies to the fossil fuel and nuclear sector were removed the renewable energy sector would not require any subsidies to be competitive (EWEA, [No date], p.6).**

This is demonstrably untrue. Perhaps they redefined the word "subsidy" to where it excludes anything the wind industry gets. The EIA, hardly an anti-wind organization, has calculated the various subsidies and, no surprise, wind and solar lead the pack:

[http://www.eia.gov/energy\\_in\\_brief/energy\\_subsidies.cfm](http://www.eia.gov/energy_in_brief/energy_subsidies.cfm)

#37 (p.24) **These subsidies were gradually reduced until they were no longer required by 1989 (Andersen, 2008, p.10).**

This is demonstrably untrue. Here's the entire paragraph from which the above quote was taken. *"Two elements were used to create a market for wind turbines in Denmark. The first element was to give the private buyers of turbines a start-up subsidy. From the introduction in 1979 was 30 % of the total cost. The subsidy was then gradually decreased until it vanished in 1989. The second element was to force the utilities to buy the electrical power at a certain price."* The SC forgot to mention the second part of the subsidy, which continues to this day.

#38 (p.24) **The land surrounding the wind turbines can remain as natural habitat or agricultural land (Andersen, 2008, p.12).**

What is left unsaid is that the land surrounding the wind turbines will NOT remain as residential or recreational, where a significant number of Ontario turbines are being

placed. Further down the page Andersen says “*The nuisance caused by turbine noise is one of the important limitations of siting wind turbines close to inhabited areas.*”

#39 (p.24) **Many of the materials wind turbines are made of can be recycled, and no decommissioning issues are associated with wind turbines (Andersen, 2008, p.11).**

Not quite. Here’s the paragraph from Andersen: “*Electricity from wind turbines has no liabilities related to decommissioning of obsolete plants. Today, most metal parts of wind turbines can be re-cycled. In a very near future other parts, such as electronics and blades, will be recycled almost 100p.c.*” It is quite a leap from “no liabilities” to “no decommissioning issues”. If you think there’s no issues, take a look:

<http://www.youtube.com/watch?v=SFqNLzOyT4I&NR=1>

#40 (p.24) **it can be seen when comparing generating types that wind generation is far less damaging to wildlife populations throughout the entire generation cycle (Newman and Zillioux, 2009, p.3-1).**

What was left unsaid was Newman’s own caution: “*No attempt was made to compare relative risks by considering electricity generation sources of the same size, such as risk per megawatt (MW).*” And given the low density of wind vs other production methods, “*Such a comparison is not likely to be realistic.*”

#41 (p.24) **wind turbines actually have a comparatively low impact on the number of birds that die every year from human causes (Erickson et al., 2005. P 1029).**

If one considers the total number of birds killed by humans over the course of a year this is a true statement. But I’m not aware of anyone who has expressed concern over the total numbers. The problem is that some species are disproportionately affected by ill-placed projects, with raptors coming immediately to mind. Also, projects placed along major migration routes can cause substantial damage to certain populations, many of which are already under pressure. The American Bird Conservancy has this page:

[http://www.abcbirds.org/abcprograms/policy/collisions/wind\\_farms.html](http://www.abcbirds.org/abcprograms/policy/collisions/wind_farms.html) and Eagle International has this: <http://bjdurk.newsvine.com/news/2011/03/29/6368865-save-the-eagles-international-issues-warning-about-extinction-by-wind-turbines>

#42 (p.25) **properly-sited**

This is Audubon’s escape card. It’s time to ask the SC: just what would constitute a not-properly-sited project? Apparently Wolfe Island, Ostrander Point, Amherst Island and White Pines didn’t make the cut. And if they didn’t, what on earth would? Wolfe Island has been a disaster: <http://windfarmrealities.org/?p=760>

#43 (p.26) **These improvements in understanding are already improving bat fatality rates and will continue to improve.**

Really? I’d feel a lot better if there was some evidence, some reference, to back this assertion up. While raising the cut-in speed shows promise, I have yet to see any studies showing where it has been successfully implemented.

#44 (p.26) **requires certain procedures to be followed during the pre-construction, construction and post construction phases of wind turbines and wind farms in order to mitigate bird and bat deaths**

These procedures so far have been a joke, MNR is responsible for overseeing Wolfe Island. In that period a major raptor habitat has been destroyed, and so far the only thing the MNR has done is to require more studies. Here's the current situation:

[http://www.torontowindaction.com/owls\\_disappearing.html](http://www.torontowindaction.com/owls_disappearing.html)

#45 (p.27) **During this 3 year monitoring period the following fatality thresholds are laid out.**

How were these levels set? They start out by claiming (section 4.1, p.10) "*Studies indicate that turbine-related mortality maintained below these thresholds is unlikely to affect bird populations.*" Except they never say what studies they are referring to. The truth oozes out in the very next sentence "*Thresholds have been established based on the highest reported bird mortality at wind power projects in North America, outside California.*" What really happened was that Wolfe's actual rates were so high they reset the thresholds so they could say that those rates were within the limits experienced at other projects. There was never even an attempt to see if they were sustainable. Here's a story of the predictable results:

[http://www.torontowindaction.com/owls\\_disappearing.html](http://www.torontowindaction.com/owls_disappearing.html)

And still the MNR does nothing.

#46 (p.28) **The best technique to avoid wildlife fatality and loss of habitat is good siting and placement of wind turbines.**

But who will enforce that? Certainly not the Ontario government, who has so far approved 4 projects in IBA's. With the SC's blessing.

#47 (p.28) **This new plan should increase bird monitoring as well as decrease bird fatalities in the area. (APWRA, 2011)**

This is a worthless assertion, having nothing to do with any reality. Birds are continuing to get slaughtered at Altamont and Tehachapi.

[http://www.usatoday.com/news/nation/environment/2009-09-21-wind-farms\\_N.htm](http://www.usatoday.com/news/nation/environment/2009-09-21-wind-farms_N.htm)

#48 (p.31) **Renewable electricity generation can potentially be seen to be reversing this trend.**

This is almost beyond irony. This passage was part of an added section dealing with the problems caused by the separation of source and consumption of electricity, and how renewable generation can fix this problem. Hello, Sierra Club! Putting wind turbines and solar panels in the countryside to feed the cities is the ultimate expression of this problem. You surely don't think they'll be putting projects in the suburbs, do you? They won't even put high-density gas plants in the cities.

#49 (p.31) **The Chief Medical Officer of Health (CMOH) of Ontario Dr. Arlene King** Dr. King's report has been thoroughly critiqued, first by the Society for Wind Vigilance, at [http://www.windvigilance.com/cmoh\\_analysis\\_media\\_release.pdf](http://www.windvigilance.com/cmoh_analysis_media_release.pdf) and also by myself, at <http://windfarmrealities.org/wfr-docs/king-journal-references.pdf> Just because an

author has some amount of authority/gravitas, it doesn't mean anything she says is true. Remember that her boss is McGuinty.

#50 (p.32) **A panel of three judges has ruled that Ontario's approach to wind turbines protects human health and the environment. The province's 550 metre setback for wind turbines is the strictest in North America and based on peer-reviewed science.**

NO. The quote you see was from the MOE, not the judge. And of course the MOE embellished the decision to suit their agenda. The actual decision is at <http://windfarmrealities.org/wfr-docs/hanna-decision-2011.pdf> The judge merely ruled that there was a process that was followed, and "*It is not the court's function to question the wisdom of the minister's decision, or even whether it was reasonable.*"

#51 (p.32) **no member of the public has ever been harmed by wind turbines."** (CanWEA, 2008)

This is demonstrably untrue. As an example there have been two known public fatalities caused by wind projects. The first was a parachutist in Germany and the second was a crop-duster in California. I'm surprised CanWEA hasn't taken that statement down, and a little surprised that the SC used it without checking it out. After all, they were after the Real Truth, weren't they? Accepting an assertion from a lobbyist at face value is almost never the way to the Real Truth, is it? Paul Gipe, a major wind promoter, keeps an account of accidents at <http://www.wind-works.org/articles/BreathLife.html> but it hasn't been updated for some time, and here's a story about the crop duster: <http://sanfrancisco.cbslocal.com/2011/01/10/fatal-crop-duster-crash-near-bradford-island/>

### Summary

This entire report, with its "Real Truth" emphasis, makes a mockery of any concept of truth. The Sierra Club started out to write something, anything, that justified their continuing support of wind energy in Ontario. They then went out looking for supporting references, or at least references that could be made to appear to support their justifications.

In passage after passage, all 51 of them, I showed where their research was incomplete, biased, sloppy, even borderline fraudulent. And after preparing this miserable excuse for a report, they then have the gall to present it to the world as the "Real Truth about Wind Energy". The quicker this report dies the better, and not just because it is pro-wind-energy. The Sierra Club could be a valuable resource in protecting – really protecting – our environment, but not given its current behaviour. The longer this farce continues the higher the risk that the Sierra Club will find itself increasingly irrelevant, and that would be a shame.

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*There's also a longer technical report at*  
[http://www.cma.ca/multimedia/CMA/Content/Images/Inside\\_cma/Office\\_Public\\_Health/ICAP/CMAICAPTec\\_e-29aug.pdf](http://www.cma.ca/multimedia/CMA/Content/Images/Inside_cma/Office_Public_Health/ICAP/CMAICAPTec_e-29aug.pdf)  
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