

**From:** [Puco ContactOPSB](#)  
**To:** [Puco Docketing](#)  
**Subject:** FW: Please post to public comments for Case # 16-1871-EL-BGN Icebreaker Wind, Inc.  
**Date:** Wednesday, May 09, 2018 9:33:09 AM

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Public comment for 16-1871-EL-BGN

**From:** salbright2@aol.com [mailto:salbright2@aol.com]  
**Sent:** Tuesday, May 8, 2018 7:26 PM  
**To:** Puco ContactOPSB <contactopsb@puco.ohio.gov>  
**Subject:** Please post to public comments for Case # 16-1871-EL-BGN Icebreaker Wind, Inc.

Good Evening Matt,

The following data from the Caithness Wind Farm Information Forum breaks down the reported international incidents and accidents related to industrial wind turbines. This information, as they say, is not complete, as wind developers are not held to complete transparency. Therefore, this could truly be the tip of the iceberg of accidents, injuries, and turbine failures. This information exemplifies the many hazards resulting from industrial wind turbines. I must therefore ask why anyone would consider introducing these potential and real incidents into Lake Erie or any of our other Great Lakes. Once destroyed, there is likely no undoing. Mitigation is a fallacy.

Further, I have not found evidence of decommissioning or frequent repair in these reported failures. It is well known that failed industrial wind turbines are typically walked away from, left to rust, rot, leak lubricating fluids and forever result in industrial litter. We can only hope the OPSB will stand up for the future of Lake Erie and say no to this self serving proposal.

Kind Regards,  
Suzanne Albright  
Great Lakes Wind Truth

#### Summary of Wind Turbine Accident data to 31 March 2018

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*You may link to **this page** from your website but*

**please do not link to the Summary or Detailed List alone** as it is important to also see the information on this page  
**nor reproduce the tables on your website** as they will cease to be current.

The **Summary** may be downloaded in printable form [here](#)

**This is GLOBAL data - see [Detailed Accident List](#) with sources and locations**

The attached **detailed table** includes all documented cases of wind turbine related accidents and incidents which could be found and confirmed through press reports or official information releases up to 31 March 2018. CWIF believe that this compendium of accident information may be the most comprehensive available anywhere.

Data in the detailed table attached is by no means fully comprehensive - CWIF believe that what is attached may only be the "tip of the iceberg" in terms of numbers of accidents and their frequency. Indeed on 11 December 2011 the [Daily Telegraph](#) reported that RenewableUK confirmed that there had been 1500 wind turbine accidents and incidents in the UK alone in the previous 5 years. Data here reports only 142 UK accidents from 2006-2010 and so the figures here may only represent 9% of actual accidents.

The data does however give an excellent cross-section of the types of accidents which can and do occur, and their consequences. With few exceptions, before about 1997 only data on fatal accidents has been found.

The trend is as expected - as more turbines are built, more accidents occur. Numbers of recorded accidents reflect this, with an average of 33 accidents per year from 1998-2002 inclusive; 81 accidents per year from 2003-2007 inclusive; 144 accidents per year from 2008-12 inclusive, and 167 accidents per year from 2013-17 inclusive.

This general trend upward in accident numbers is predicted to continue to escalate unless HSE make some significant changes - in particular to protect the public by declaring a minimum safe distance between new turbine developments and occupied housing and buildings.

In the UK, the HSE do not currently have a database of wind turbine failures on which they can base judgements on the reliability and risk assessments for wind turbines. Please refer to <http://www.hse.gov.uk/research/rrpdf/rr968.pdf>.

This is because the wind industry "guarantees confidentiality" of incidents reported. Please refer to <http://www.renewableuk.com/?page=riser&terms=incident>. No other energy industry works with such secrecy regarding incidents. The wind industry should be no different, and the sooner RenewableUK makes its database available to the HSE and public, the better. The truth is out there, however RenewableUK don't like to admit it.

Some countries are finally accepting that industrial wind turbines can pose a significant public health and safety risk. In June 2014, the report of the Finnish Ministry of Health called for a minimum distance of 2 km from houses by concluding: "The actors of development of wind energy should understand that no economic or political objective must not prevail over the well being and health of individuals." In 2016 Bavaria passed legislation requiring a minimum 2km distance between wind turbines and homes, and Ireland are considering a similar measure.

The Scottish government has proposed increasing the separation distance between wind farms and local communities from 2km to 2.5km (<http://www.bbc.co.uk/news/uk-scotland-scotland-politics-26579733>) though in reality the current 2km separation distance is often shamefully ignored during the planning process.

Our data clearly shows that blade failure is the most common accident with wind turbines, closely followed by fire. This is in agreement with GCube, the largest provider of insurance to renewable energy schemes. In June 2015, the wind industry's own publication "WindPower Monthly" published an article confirming that "Annual blade failures estimated at around 3,800", based on GCube information. A GCube survey in 2013 reported that the most common type of accident is indeed blade failure, and that the two most common causes of accidents are fire and poor maintenance

<http://www.gcube-insurance.com/press/gcube-top-5-us-wind-energy-insurance-claims-report/>. A further GCube report in November 2015 states that there are an average 50 wind turbine fires per year <http://www.gcube-insurance.com/press/gcube-tackles-turbine-fires/>. This is over double the reported CWIF data below, further underpinning that data presented here may only be "the tip of the iceberg".

Data attached is presented chronologically. It can be broken down as follows:

#### Number of accidents

Total number of accidents: 2231

By year:

Year	Before 2000	2000-2004	05	06	07	08	09	10	11	12	13	14	15	16	17	*18
No.	109	243	71	83	125	131	131	120	170	168	174	164	153	164	181	44

\* to 31 March 2018 only

#### Fatal accidents

Number of fatal accidents: 137

By year:

Year	Before 2000	2000-2004	05	06	07	08	09	10	11	12	13	14	15	16	17	*18
No.	24	12	4	5	5	11	8	8	15	16	4	2	7	6	9	1

\* to 31 March 2018 only

Please note: **There are more fatalities than accidents as some accidents have caused multiple fatalities.**

Of the 184 fatalities:

- 112 were wind industry and direct support workers (divers, construction, maintenance, engineers, etc), or small turbine owner/operators.
- 72 were public fatalities, including workers not directly dependent on the wind industry (e.g. transport workers). 17 bus passengers were killed in one single incident in Brazil in March 2012; 4 members of the public were killed in an aircraft crash in May 2014 and a further three members of the public were killed in a transport accident in September 2014. This includes several suicides from those living close to wind turbines.

### Human injury

162 accidents regarding human injury are documented.

By year:

Year	Before 2000	2000-2004	05	06	07	08	09	10	11	12	13	14	15	16	17	*18
No.	5	11	6	10	16	16	9	14	12	15	9	8	9	9	13	

\* to 31 March 2018 only

During the 162 accidents, 181 wind industry or construction/maintenance workers were injured, and a further 75 members of the public or workers not directly dependent on the wind industry (e.g. fire fighters, transport workers) were also injured. Eight of these injuries to members of the public were in the UK.

### Human health

Since 2012, 127 incidents of wind turbines impacting upon human health are recorded.

By year:

Year	12	13	14	15	16	17	*18
No.	6	27	19	13	17	36	9

\* to 31 March 2018 only

Since 2012, human health incidents and adverse impact upon human health have been included. These were previously filed under "miscellaneous" but CWIF believe that they deserve a category of their own. Incidents include reports of ill-health and effects due to turbine noise, shadow flicker, etc. Such reports are predicted to increase significantly as turbines are increasingly approved and built in unsuitable locations, close to people's homes.

### Blade failure

By far the biggest number of incidents found was due to blade failure. "Blade failure" can arise from a number of possible sources, and results in either whole blades or pieces of blade being thrown from the turbine. A total of 381 separate incidences were found:

By year:

Year	Before 2000	2000-2004	05	06	07	08	09	10	11	12	13	14	15	16	17	*18
No.	35	53	12	17	23	20	26	20	20	28	35	31	19	21	16	5

\* to 31 March 2018 only

Pieces of blade are documented as travelling up to one mile. In Germany, blade pieces have gone through the roofs and walls of nearby buildings. This is why CWIF believe that there should be a minimum distance of at least 2km between turbines and occupied housing or work places, in order to adequately address public safety and other issues including noise and shadow flicker.

### Fire

Fire is the second most common accident cause in incidents found. Fire can arise from a number of sources - and some turbine types seem more prone to fire than others. A total of 319 fire incidents were found:

By year:

Year	Before 2000	2000-2004	05	06	07	08	09	10	11	12	13	14	15	16	17	*18
No.	7	62	14	12	21	17	17	13	20	19	24	19	18	28	24	3

\* to 31 March 2018 only

A GCube report in November 2015 states that there are an average 50 wind turbine fires per year. <http://www.gcube-insurance.com/en/press/gcube-tackles-turbine-fires/> This is over double the reported CWIF data above, further underpinning that data presented here may only be "the tip of the iceberg".

The biggest problem with turbine fires is that, because of the turbine height, the fire brigade can do little but watch it burn itself out. While this may be acceptable in reasonably still conditions, in a storm it means burning debris being scattered over a wide area, with obvious consequences. In dry weather there is obviously a wider-area fire risk, especially for those constructed in or close to forest areas and/or close to housing or work places. Five fire accidents have badly burned wind industry workers.

### Structural failure

From the data obtained, this is the third most common accident cause, with 200 instances found. "Structural failure" is assumed to be major component failure under conditions which components should be designed to withstand. This mainly concerns storm damage to turbines and tower collapse. However, poor quality control, lack of maintenance and component failure can also be responsible.

By year:

Year	Before 2000	2000-2004	05	06	07	08	09	10	11	12	13	14	15	16	17	*18
No.	15	32	7	9	13	9	16	9	13	10	14	13	12	11	14	3

\* to 31 March 2018 only

While structural failure is far more damaging (and more expensive) than blade failure, the accident consequences and risks to human health are most likely lower, as risks are confined to within a relatively short distance from the turbine. However, as smaller turbines are now being placed on and around buildings including schools, the accident frequency is expected to rise.

### Ice throw

42 incidences of ice throw were found. Some are multiple incidents. These are listed here unless they have caused human injury, in which case they are included under "human injury" above.

By year:

Year	Before 2000	2000-2004	05	06	07	08	09	10	11	12	13	14	15	16	17	*18
No.	9	8	4	3	0	3	4	1	1	1	0	1	1	3	1	2

\* to 31 March 2018 only

Ice throw has been reported to 140m. Some Canadian turbine sites have warning signs posted asking people to stay at least 305m from turbines during icy conditions.

These are indeed only a very small fraction of actual incidences - a report\* published in 2003 reported 880 icing events between 1990 and 2003 in Germany alone. 33% of these were in the lowlands and on the coastline.

\*("A Statistical Evaluation of Icing Failures in Germany's '250 MW Wind' Programme - Update 2003", M Durstwitz, BOREAS VI 9-11 April 2003 Pyhänturi, Finland.)

Additionally one report listed for 2005 includes 94 separate incidences of ice throw and two reports from 2006 include a further 27 such incidences. The 2014 entry refers to multiple YouTube videos and confirmation that ice sensors do not work.

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