Comments to Environmental Registry re Goulais Wind Farm
Township of Pennefather and Aweres – Algoma District
Recorded as Comment 157169 EBR Registry Number 011-8558

Background:

As a former resident of "North of Superior" with links to Manitouwadge, Schreiber, and Terrace Bay, our family is very familiar with Algoma Country, north of Sault Ste. Marie. Also, as a family who has traveled Canada from Newfoundland to Vancouver Island, it is a true fact that we have chosen the Algoma District over any other destination in Canada as our favourite location in Canada.

We have gone out of our way to bring visitors to Canada specifically to Algoma District, to travel on the Agawa Canyon Tour Train, noted on their web site as "One of the most popular train tours in North America." Why, one may ask? The Agawa Canyon Train Tour web site puts the reason well as it is a trip into "pristine wilderness", whatever the season.

Against this backdrop, we carefully reviewed the literature on the Goulais Wind Farm website including the Design and Operations Manual, its appendices, the Consultation Report, and its appendices.

We submit these comments for consideration as part of the review of the Goulais Wind Farm.

Winners and Losers:

Specifically for the Goulais Wind Farm, we note the expectation of Sprott Power Corp. a company with stock valued at $1.20 per share (at time of writing) "dedicated and committed to the development, ownership and operation of renewable energy projects." This 25 MW wind project, based on FIT pricing of $135 per MWh (as a previously signed contract exists) plus $10 a MWh from Eco-Action Grants for 10 years, has an expectation to gain some:

25 MW x 0.30 capacity factor x 8760 hours per year x $145 per MWh
= $9.5 Million per year

That is a significant gain.

In contrast, although the taxation status of an unincorporated municipality is a bit of a challenge to ascertain, based on typical municipal tax rates in other Ontario municipalities, Sprott Power can expect to pay some:

25 MW x $40,000 assessment / MW x a mill rate of about 0.03
= $30,000 per year

That is a pretty insignificant contribution to municipal, district, and education taxes. Conversely, losses to the multi million dollar income from visitors who come to Algoma District to experience the "pristine wilderness" or to participate in the "limitless opportunities for snowmobiling" identified on the Agawa Canyon Tour Train web site are a considerable threat. It will not take too many tourists traveling into Sault Ste Marie past the Goulais Wind Farm, with the 99.5 metre high, 113 metre rotor diameter wind turbines (located just off highway 17, and 35% larger than the existing Prince Wind Farm, which are more isolated from the main artery of Highway 17) to recognize that they really are not traveling into a pristine wilderness, but into an industrial development … the kind of environment that they brought their tourist dollars to Algoma District to escape.

Other Gains and Losses:

Ontario will gain 25 MW of generation that generally produces best when the demand for electricity in Ontario is at ebb, in spring and fall, and at night. Ontario also gains a 25 MW of generation that is at it's lowest when the demand for generation is at it's peak during hot humid summer days – when there is little wind. Mind you Ontario also gains 25 MW of generation that will force the derating of nuclear and hydraulic generating units to derate when the wind produces best. April 29 for example, from midnight to 5 AM, wind turbines were producing from 809 MW (at midnight) to 488 MW (at 5 AM) while nuclear units were derated (and paid to derate) from 1100 to 1400 MW, and there was an excess hydraulic generating capability of over 3100 MW each hour. Did we really need to be purchasing that wind generation at some $145 a MWh when there was a surplus of generation, and when the system electrical price even went negative, meaning that we were paying customers to consume? The benefit from wind turbines is in many occasions, as then, not a gain but a loss … but Sprott Power will be happy. As for the income of the Algoma District, home of "pristine wilderness" the court is still out.

Larceny / Public Safety:

The dictionary defines larceny as "a theft of personal property." It is interesting in light of that definition to read the Goulais Wind Farm documentation to note that 7 of potentially 11 used sites are located so close to the boundary of neighbours that they were not even able to provide a setback equal to the turbine hub height to provide even minimal public safety. The "Property Line Setback Assessment Report" notes that the mitigating factors to prevent a turbine collapse are actually no more confining than the factors applied to a turbine that meets the setback criteria. Simply put, the offending turbines are taking away the property rights of neighbours, and the only compensation offered is that … if the turbine falls over, then we will negotiate with the landowner and offer him something for the damages. Never mind that the neighbour might well decide that he does not want to work under a wind turbine where a blade detachment may occur, as did occur on a Prince Farm wind turbine or a Port Burwell wind turbine in Ontario, or where fire from the turbine may extend beyond the setback limit, as it did for a Kingsbridge wind turbine in Ontario, or where the tower collapses, as it did on a Furhlander wind turbine in Kincardine, one of Ontario's early wind turbines.

It is also interesting to note the literature presented in the Goulais Wind Farm that assessment by Garrad Hassan is stated in section 5.9 of the Design and Operations Manual that, *"Garrad Hassan Canada undertook a review of publicly-available literature on turbine rotor failures resulting in full or partial blade throws (Garrad Hassan Canada, 2007). Such events were found to be very rare; therefore data describing these events are scarce."* The section goes on to say, *"There has been widespread introduction of turbine design certification and approval that certifies compliance with standards and requires a dynamic test that simulates the complete life loading on the blade (Garrad Hassan Canada, 2007). The certification body also performs a quality audit of the blade manufacturing facilities and performs strength testing of construction materials. This approach has effectively eliminated blade design as a root cause of failures (Garrad Hassan Canada, 2007)."*

The Ministry of the Environment must look very critically at those statements. In fact, as demonstrated, blade failures, tower collapse, and fires are not unheard of in Canada, and in 2012 there were 18 known blades on the ground, 5 known total collapses, and 10 known fires. In fact, had the root cause of failures been eliminated as the Garrad Hassan Report identifies, then it is very remarkable that the Goulais Wind Farm report fails to recognize the blade failure of a Siemens 2.3 MW turbine in Scotland, and a second Siemens 2.3 MW turbine in Iowa, both within months of erection, and both since the 2007 Garrad Hassan Report – since these are the types of wind turbines proposed for this wind farm. The Ministry of the Environment must find that this statement in the Design and Operations Manual is without merit.

Erection of these wind turbines without providing adequate public safety setbacks to protect against known accidents that have occurred is theft of public safety on the property of neighbours, without compensation – and may simply be considered as larceny.

<u>Environmental Impact</u>:

It is very interesting how the Goulais Wind Farm documentation dismisses impact on wildlife habitat. Examples are readily available in Bruce County if one chooses to look at distribution of wildlife, to note that since the erection of wind turbines, the prevalence of wildlife in the vicinity of the turbines has decreased, while the prevalence distant from turbines has increased. (Deer hunting season is a good example – the number of deer taken by hunters near turbines has decreased, while the number distant from the turbines has increased.) Animals do not have mortgages on their homes, and use their feet to move away from wind turbines. This is a reduction in habitat, and in fact results in a shortage in foodstock for the increased population in wildlife in the remaining sites, distant from the wind turbines. This environmental impact will have already occurred in the area of the Prince Wind Farm, and wildlife will now be forced even further away if the Goulais Wind Farm is permitted.

<u>Impact on Recreation</u>:

It is remarkable how the Goulais Wind Farm documentation notes that roads kept open for access to wind turbines and its transformer station will preclude the continued usage of these roads for snowmobiling in the winter. For Algoma District, which puts considerable effort and funds into development of its reputation as a snowmobile destination, to just dismiss another area from snowmobile use further removes the tourist destination status of Algoma District.

Noise Assessment:

The Noise Assessment in the appendix of the Design and Operations Report repeats the errors of many Noise Assessments. The calculations use a ground attenuation factor of 0.7, which is certainly not appropriate for winter time, or for hard rock footings, and can result in an increase of some 2 dBA. The interaction of turbulence due to downstream turbines being sited what appears to be in the order of 400-metre spacing, much at less than 10 rotor diameters (1130m for these turbines) will result in the noise assessment for a single turbine provided by Siemens to underestimate the noise by a factor of 3 to 5 dBA. The turbulence will also result in increased stresses on the long blades.

Summary:

The proponent, Sprott Power Corp, has failed to demonstrate that the Goulais Wind Farm will provide advantages to Algoma District. There is high risk that impact on tourism will be adverse, a subject that is inadequately addressed. The setbacks to neighbouring property lines do not provide adequate safety from known failures, and the provided documentation that claims accidents are of low frequency or that root causes have been addressed have not been adequately provided. The noise assessment fails to properly account for turbulence due to the close spacing of wind turbines in either this proposed wind farm or the neighbouring impacting wind farm.

The proposal has failed to demonstrate any benefit to the province electrical system or electrical consumer.

A Professional Engineer has prepared this review with experience in public safety in the electrical generation sector.