MULTI-MUNICIPAL WIND TURBINE WORKING GROUP
COMPRISED OF ELECTED OFFICIALS AND APPOINTED CITIZENS FROM THE MUNICIPALITIES OF BRUCE, GREY, DUFFERIN, HURON & PERTH COUNTIES

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29 May, 2012.

The Honourable Deb Matthews
Minister of Health
Ministry of Health and Long-Term Care
10th Floor, Hepburn Block
80 Grosvenor Street
Toronto, Ontario M7A 2C4

Dear Minister:

RE: JEOPARDIZATION OF AIR AMBULANCE ACCESS NEAR INDUSTRIAL WIND TURBINE DEVELOPMENTS

We are bringing this issue to your attention as a matter of urgency.

You may not be aware that some industrial wind turbine developments proposed for rural Ontario may affect the continued safe functioning of air ambulance services in areas where there has not been proper planning consideration of approach routes for emergency air ambulances to hospitals.

As you will see from the documentation that accompanies this letter, it is of paramount importance that provision for a turbine-free corridor of up to 5 nautical miles for approaching air ambulances be incorporated into the earliest stages of wind turbine development planning. Failure to do this means that EMS air ambulance services may have to be delayed by re-routing, may be put at risk by unpredictable turbulence resulting in loss of control of the aircraft, or may have navigational instruments affected by interference with radar signals.

For example, near the **Grey Bruce Health Services, Southampton (Saugeen Memorial Hospital),** a wind energy project has been proposed by Leader Resources/American Wind Alliance/Samsung. If constructed, it would intercept the line of approach and take-off for helicopters travelling between the Southampton hospital and Toronto/London hospitals. (Nav Canada has already requested the removal of some turbines planned adjacent to the Southampton Airport on safety grounds, but the location of the rest of the planned array and its interception of the air ambulance route has not been addressed).

There will be the same issues in Listowel, Wingham, Mount Forest, Goderich, and Kincardine—as well as communities in Eastern Ontario-- in fact anywhere there is a hospital that needs to transport critically ill patients using the air ambulance service. Ontario residents outside the major cities are unwilling to have their emergency air transport services compromised.

In addition to hospitals there is also the problem of emergency services for road or farm accidents. Air ambulances can now pick up patients from virtually everywhere. With the density of turbines being proposed for many areas, the current strategy of concentrating complex services in central sites such as London, Toronto or Ottawa may no longer be viable as the patients cannot be transported there. We are going to need a return to decentralized specialized services in areas with high densities of turbines. This will be very expensive.

It should be noted that some of these hospitals located in tourism areas experience a higher volume of emergency evacuation cases during the summer months when the population is increased by urban visitors.

The following technical concerns have been identified for air ambulances flying near wind turbines

1. Interference with navigational radar
Wind turbines cause problems for navigational radar on helicopters. Chapter 2 of the attached document from the United Kingdom Civil Aviation Authority *CAP 764 CAA Policy and Guidelines on Wind Turbines* outlines in technical terms the impact of wind turbines on aviation. This includes the interference with radar signals including obscuration, false returns, clutter, filter memory overload, and shadow.

2. Destabilization of airborne maneuvers caused by turbulence
Another problem is the turbulence created by the turbines themselves. This can have a destabilizing effect on airborne maneuvers. A wide enough turbine free corridor is required in order to assure that turbulence from the wind turbine blades does not have an adverse effect on the tail rotor, causing loss of flight control. Various experts have estimated a necessary corridor up to 5 nautical miles (1 nautical mile is equivalent to 1.852 kilometres). *The greatest separation is preferable in coastal areas exposed to high winds, fog and snow squalls.*

3. Limitation of available days when flights possible
Current FAA (Part 135) regulations require ½ mile of ground visibility and a 300 foot ceiling. If the visibility or ceiling falls below the operational specifications for that flight program the pilot cannot legally accept the flight. If the turbine blade extends to 500 feet an EMS helicopter would need to be 1,000 feet off the ground to fly over it. This would limit flights to days when there is a cloud ceiling of 1,000 feet or greater. This would greatly limit the available days for flights into and out of these hospitals.

4. Lost time if flights must be diverted around turbines and ground transport used

If the patient needs to be transported by ground to a location free of turbines valuable time is lost and that is what the EMS helicopter program is all about. This would seriously compromise life-saving ability.

5. Need for early input into project plans
Under Section 2 of the Green Energy Act, and in keeping with the *Environmental Assessment Act* (EAA) (RSO 1990, amended 2001) the developer is required to consult with the community, address public concerns and issues and allow the community to make meaningful input into the project review and development. It is imperative that provision for meaningful turbine free corridors for rescue helicopter use be established at the earliest stage of planning.

We trust that having raised this critical issue with you, we will see expedient planning measures taken to safeguard safe functioning of the EMS air ambulance service in our communities. Your ministry will need to assure that adequate corridors through wind turbine developments are a requirement of government approval. We look forward to hearing from you very soon.

Yours truly,

Mark Davis,
Deputy Mayor, Municipality of Arran-Elderslie,
Chair, Multi-municipal Wind Turbine Working Group.

CC:
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Attachments:

We have attached the following documents to provide details on the seriousness of this issue.

1. **Submission by an EMS pilot** to Calumet County (USA) committee researching proposed ordinances governing the placement of wind turbines in the county. This document describes in technical terms the **hazards involved in piloting an air ambulance through a wind turbine development**. The pilot emphasizes the need to keep a turbine free access corridor open through the development. **(helicopters EMS pilot submission.pdf)**

2. U.S. press interview with **EMS pilot expressing concern over hazard of industrial wind turbines (helicopter pilots concern over wind turbines.pdf)**

3. A technical article from Germany describing the **velocity contours and the wake behind wind turbines**. **(helicopters turbine_wake.pdf)**

4. **"Safety near offshore wind turbines".** Power point conference presentation by Jan Tjalling van der Wal. **(helicopters conference pdf)**

5**. Reasons given by helicopter spraying service refusing to operate within wind turbine development:** "All airfoils in motion create wake turbulence. . . . The turbulence created is proportional to the weight and angle of attack of the airfoil; the heavier the weight and greater the angle of attack, the greater the wake turbulence. A commercial wind turbine's three blades can weigh as much as 40,000 pounds and operate at a very high angle of attack. **The result is turbulence severe enough to induce loss of control to an aerial application aircraft**". **(Helicopters spraying service.pdf)**

6. **Hazards of Met towers:** Met towers measuring wind resources are erected preliminary to wind turbine developments. They remain part of the development after construction. They are not marked at night and present an additional hazard to helicopters. This article from the Online **Aircraft Owners and Pilots Association** describes the **death of a crop duster when his aircraft hit an unmarked meteorological tower**. "The fact that these towers are narrow, unmarked, and grey in color makes for a structure that is nearly invisible under some atmospheric conditions." **(met tower crop duster crash (1) pdf)**

7. **U.K. Civil Aviation Authority, Directorate of Airspace Policy: CAP 764: CAA Policy and Guidelines on Wind Turbines:** "There is no doubt that while small wind turbine developments can have an effect that has an adverse impact on aviation; the proliferation of developments and the subsequent cumulative effect is of far more significant concern. It may be possible to successfully mitigate the effects of a single turbine or even an entire wind turbine development; however, the combined effect of numerous individual turbines or multiple wind farm developments can be hard, if not impossible, to mitigate. The cumulative effect of geographically separated windfarms may have more impact on aviation than if such windfarms were located in close proximity to each other." "The research found that there are two factors to turbulence caused by wind turbines. One is the blade tip vortices which are identical in nature to those found on fixed wing and rotary wing aircraft. The other is the effect of surrounding air rushing in to fill the void of de-energised air behind the turbine causing rolling turbulence". **(helicopters UK CAA Policy and Guidelines on Wind Turbines. pdf)**