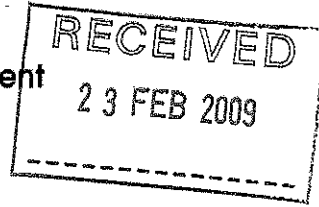


**Submission on publicly notified application for a resource consent under section 145 of the Resource Management Act 1991**

To:

**Ministry for the Environment**  
PO Box 10362  
The Terrace  
Wellington 6143  
**By Email: turiteacallin@mfe.govt.nz**



From:

**Airways Corporation of New Zealand Ltd (Airways)**  
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WELLINGTON  
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This submission relates to the applications for resource consent lodged by Mighty River Power Ltd for the Turitea Wind Farm Proposal contained in the following consent numbers (RC0068 and 1448).

**The specific parts of the application that this submission relates to are:**

This submission relates solely to the nature of the activity, in so far as it has the potential to affect the safe and efficient operation of the air traffic network.

**1. AIRWAYS CORPORATION OF NEW ZEALAND SUBMITS THAT:**

**Background**

Airways has principal responsibility for facilitating the safe movement of air traffic through New Zealand airspace. It is responsible for managing all domestic and international air traffic for one of the largest areas of airspace in the world - 34 million square kilometres.

Airways does not object in principal to the proposed activity provided that any potential danger to aircraft is fully assessed and effectively managed, remedied and/or mitigated.

In particular Airways has concerns over the potential impact that the proposed activity could have on the existing Ballance radar station or any future radar and navigational aid sites or facilities, which provide essential navigational data for aircraft approaching Palmerston North Airport, Ohakea Airport and elsewhere.

The Ballance radar provides an en-route service up to a distance of 463 kms. Additionally Airways operates VHF air-ground radios and radio link equipment from the site which also could be affected.

### **Civil Aviation Rule Part 77**

Civil Aviation Rule Part 77 regulates "Objects and Activities Affecting Navigable Airspace".

The relevant Rules are attached as Appendix A. However, among other things, the Rule identifies structures over 60m in height as potentially hazardous to aircraft.

Civil Aviation Rule Part 77.19 states the Director shall determine any such activity to be a "*hazard in navigable airspace*".

Airways seeks to eliminate the potential for such hazards and considers that the Minister should have appropriate regard to these matters in assessing the adverse effects of the application.

We understand that the applicant has provided notice to the Civil Aviation Authority under rule part 77 of its proposal to construct the wind farm, however we consider that 'notice' is insufficient and that a full aeronautical study into the effects of the wind farm should be conducted.

### **Effects of Wind Turbines on Radar**

The potential problems that radar may suffer from wind turbines are two fold.

Firstly, the turbine structures themselves may pose an obstruction to the radar signal path along aircraft routes. This can happen if the turbine support structures are metallic, have flat metallic components and the array of such structures are oriented to a radar in such a way that they appear as a continuous structure.

In such instances these turbines may not only obstruct coverage over certain areas (where height also becomes a factor) but also could cause reflection of the signal and give false replies. Such an impact is most likely when wind turbines are located on the crest of hills, which is the usual case for wind generators.

Secondly, the rotating blades of the turbine could be picked up by primary radar and seen as false targets (clutter) on Air Traffic Control radar displays.

While means are available to cancel out areas where there is such disturbance to radar it could also have the effect of it reducing aircraft

detection capability, which would be an unacceptable risk to public safety.

**2. AIRWAYS SEEKS THE FOLLOWING DECISION FROM THE MINISTER:**

Any consent to the application shall include the following conditions:

1. The applicant must consult with the Civil Aviation Authority of New Zealand (**CAA**) in order to eliminate the potential for any danger to aircraft (whether direct or indirect) and will obtain an aeronautical study in respect of the application, if recommended to do so by CAA; and
2. The effect of the proposal on the operation of the Airways Ballance radar station and any other relevant navigational sites and facilities (or future capabilities) must be fully assessed and avoided, remedied or mitigated to ensure the safe and efficient operation of the air transport network.

**3. AIRWAYS CORPORATION OF NEW ZEALAND WISHES TO BE HEARD AT THE HEARING IN SUPPORT OF ITS SUBMISSION**

23/2/09

  
Lucy Kebbell, Solicitor  
Airways Corporation of New Zealand

cc. *Freepost - MRP*  
*Mighty River Power Ltd*  
*PO Box 445*  
*Hamilton 3240*  
**Attention: Stephanie Froggatt**  
**By email: [turitea@mightyriverpower.co.nz](mailto:turitea@mightyriverpower.co.nz)**

## APPENDIX A

### SELECTED SECTIONS OF CAA RULE PART 77 - OBJECTS AND ACTIVITIES AFFECTING NAVIGABLE AIRSPACE

#### 77.5 Notice of construction or alteration of structure

Each person proposing to construct or alter a structure must notify the Director of the proposal in accordance with 77.13 if—

- (1) the structure will extend more than 60 m in height above the ground level at its site; or
- (2) the structure will exceed the general tree height in the area by 18 m and be located in an area of low level aerial activity or other low flying activity, or in a low flying zone or low level route as prescribed under Part 71; or
- (3) the structure is or will be located below the approach or take-off surfaces of an aerodrome as outlined in figures A.1 and A.2 of Civil Aviation Rules Part 77 CAA Consolidation 5 August 2004 5 CAA of NZ Appendix A, and will extend to a height greater than a surface, outlined in Appendix A, extending outward and upward at one of the following:
  - (i) a slope of 1:83 from the fan origin of the takeoff surface of each runway where the runway is used or intended to be used by aircraft with a MCTOW above 5700 kg;
  - (ii) a slope of 1:50 from the fan origin of the takeoff surface of each runway where the runway is used or intended to be used by aircraft with a MCTOW at or below 5700 kg;
  - (iii) a slope of 1:25 from the nearest point of the safety area of each heliport; or
- (4) the structure would penetrate the conical, inner horizontal, or transitional side surface of an aerodrome as—
  - (i) outlined in figure A.1 of Appendix A; or
  - (ii) specified in Part 139; or
  - (iii) as defined in the local district scheme.

...

#### 77.7 Notice of use of a structure, light, or laser

(a) Each person proposing to use a structure shall notify the Director of the proposal in accordance with 77.13 if—

- (1) the structure will or may discharge efflux at a velocity in excess of 4.3 m per second through the obstacle limitation surfaces of an aerodrome; or
- (2) the structure will or may discharge efflux at a velocity in excess of 4.3 m per second higher than 60 m above ground level.

...

### 77.19 Standards for determining hazards

(a) The Director must determine a structure to be a hazard in navigable airspace if—

- (1) it is 120 m or higher above ground level at its site; or
- (2) it is 60 m above ground level at its site and located within 1 km of a defined VFR transit lane.

(b) The Director must determine the use of a structure to be a hazard in navigable airspace if the structure will or may discharge efflux at a velocity in excess of 4.3 m per second through the obstacle limitation surfaces applicable to an aerodrome.

(c) The Director must determine the use of a structure to be a hazard in navigable airspace if the structure will or may discharge efflux at a velocity in excess of 4.3 m per second higher than 60 m above ground level.

...

(h) The Director may determine, based on the circumstances of each proposal, a structure to be a hazard in navigable airspace if—

- (1) it is 60 m above ground level at its site and stands in a flat plain area; or
- (2) it is located within an instrument flight procedures area that is specified in ICAO document 8168-OPS/611, including standard arrival routes, initial, intermediate, final, visual and missed approach segment areas, departure areas and standard instrument departure routes, and would result in—
  - (i) the vertical distance between any point on the structure and an established minimum instrument flight altitude within that area or segment being less than obstacle clearance required under 19.155; or
  - (ii) additional or new ceiling or visibility restrictions or a change in flight procedures applicable to departures within that area; or
- (3) it is located within an IFR en-route obstacle clearance area, including evaluated routes on NZ en-route and area charts but excluding charted routes as published in the NZAIP instrument flight guide, and would necessitate an increase in an existing or planned minimum obstacle clearance altitude; or
- (4) it exceeds the general tree height by 18 m and is located in an area of low level aerial activity or other low flying activity, or in a low flying zone or low level route as prescribed under Part 71; or
- (5) it is in the vicinity of an aerodrome and protrudes through the obstacle limitation surfaces.