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Department Of Planning

Sydney

NSW 2000

By e-mail

Submission re Crookwell 2 Modification and Crookwell 3 Amendment Applications (DA 176-8-2004-i MOD 2, and SSD 6695)

On behalf of Parkesbourne/Mummel Landscape Guardians Inc (PMLG), I object to the above applications.

Increase in turbine dimensions

Crookwell 2

The tip height of the turbines is to increase from 128m to up to 160m. The rotor diameter is to increase from 96m to up to 130m.

Visual impact: I submit that the increase in visual impact will be unacceptable. Although the number of turbines is to decrease from 46 to 33, there will still be a very

considerable increase in visual impact merely from the increase in tip height, since the disproportion between the height of wind turbines and the heights of other features in the landscape (trees, sheds, etc) is itself responsible for a negative aesthetic effect. In addition, the visual impact of wind turbines also depends on the fact that the blades of wind turbines move, thus attracting attention to themselves. The height of the turbines and the movement of the blades together are responsible for the fact that wind turbines tend to dominate their landscapes. This will certainly be the case with the increases referred to above.

Noise impact: There will be a very considerable and unacceptable increase in noise impact from the increase in the area described by the turbine blades. With the present rotor diameter of 96m (radius = 48m), the area described by the blades (pi x r^2) = 7241.1 sq m. With a rotor diameter of 130m the area described will increase to 13278.6 sq m. That is, the area described will increase by 45.5%. With such an increase it is inevitable that there will be a very considerable increase in noise impact.

Crookwell 3

The number of turbines is to be reduced from 29 to 23. The rotor diameter is to be increased from 104m to up to 130m. The maximum tip height is to remain at 157m.

Visual impact: the increase in the size of the rotor will exacerbate the negative character of the visual impact, given the fact that turbine blades move. Turbines that are 157m in height, with a rotor of diameter of 130m, are bound to dominate their landscape. This will have an unacceptable visual impact.

Noise impact: At present the area described by a rotor of diameter of 104m = 8498.3 sq m. If the rotor diameter increases to 130m, the area described by the rotor will be 13278.6 sq m. This is an increase in area described of 36%. This will undoubtedly produce an unacceptable increase in noise impact.

Distances between turbines and noise impact

According to the *NSW Wind Energy Handbook*, published by the Sustainable Energy Development Authority of NSW (SEDA), the spacing between wind turbines should be determined by the '5r-8r rule'; i.e., the distance between turbines should be no less

than 5 times the rotor diameter abreast, or 8 times the rotor diameter downwind. This is to minimize 'wake turbulence' from the wakes of individual turbines interfering with each other. From the standpoint of the wind energy industry the minimization of wake turbulence is desirable in order to maximize efficiency, electricity production, and profits. But from the standpoint of wind farm neighbours the minimization of wake turbulence is also desirable, as wake turbulence increases noise levels.

As the wind farm developer has only a finite area of land on which to locate his wind farm, he may choose to sacrifice the spacing between individual turbines, so as to cram more turbines onto the site, and maximize the total output of the wind farm. But this may increase noise impacts unacceptably for neighbours in particular places. The planning authority should not allow the interests of neighbours to be sacrificed in this way for the sake of the developer's profits.

In the Crookwell area wind can come from any point of the compass. Consequently, there are likely to be residences downwind of turbines, regardless of the direction of the wind. Therefore, the minimum spacing distance between turbines for the Crookwell 2 and 3 Wind Farms should be 8 times the rotor diameter.

Since the Crookwell 2 Modification and the Crookwell 3 Amendment both propose to increase the rotor diameter, by up to 34m (Crookwell 2) and up to 26m (Crookwell 3), the matter of spacing between turbines must be reconsidered.

The maximum rotor diameters for Crookwell 2 and Crookwell 3 are now proposed to be 130m. Therefore, the spacing between turbines should not be less than 8 x 130 = 1040m. The Department of Planning and the Planning Assessment Commission should remove turbines from the project if this criterion is not met.

In relation to this matter, the Department and the PAC must consider very carefully the applicant's request to have a 50 metre micro-siting allowance for Crookwell 2.

Finally, it is ridiculous of the developer to claim that the development application for Crookwell 3 is being amended "to reduce the impacts of the project". As shown above, increasing the rotor diameter of the turbines is bound to produce greater impacts, both visual and in relation to noise. This is true for Crookwell 2, as well as for Crookwell 3.

Neither I nor PMLG has made any reportable political donations during the past two years.

Yours sincerely

David Brooks

Chairman

Parkesbourne/Mummel Landscape Guardians Inc.