

Pejar Park,  
Woodhouselee  
NSW 2580

I do not support the proposed substantial modifications to the Crookwell 2 Wind Farm development.

It is difficult to see the change in scale as a 'modification' given the scale of the proposed change. A proposal to construct multiple towers each with a 160m turbine (effectively multiple 54 storied buildings) is wholly inappropriate for the area, and industrial scale development of this type for power production should not be imposed on a relatively small valley around Woodhouselee.

#### *Industrial Scale Development of Power Stations*

The proposal to increase the height of the turbine to 160M is not a small modification. The existing height of 128m is already equivalent to twice the wingspan of a Boeing 747 Jumbo. The new proposal will result in a height equivalent to a building of some 54 stories.

Such industrial scale within a rural landscape is inappropriate since the visual impact is very large.

The construction of the larger bladed turbines will also lead to a massive increase in materials and construction to build the foundations including blasting of basalt rock. Each turbine will require more than a thousand tonnes of concrete and steel, all of which will have to be transported on unsuitable small local roads. Transporting the proposed 160M larger turbines likely will require roads to be straightened, widened and reinforced. Each nacelle on the larger turbines probably approaches 100tonnes.

#### *Increased Scale adds to disproportionate noise*

It has been known since the early 1980s that noise from large wind turbines can adversely affect human health. Researchers noted that infrasound (below the threshold of hearing, or <20 Hz) and low-frequency (<100 Hz) noise ("ILFN") was resonating with the building structures as well as with the subjects' bodies to create the feelings of pressure, uneasiness, and vibration. And indeed, their measurements showed that ILFN pulses dominated the sound energy from the turbine. As the turbine scale increases the noise level is likely to grow disproportionately louder.

A potential solution (at least for human neighbours) is the same: large setback distances to avoid subjecting people to not just increased audible noise as recommended by the World Health Organization (Berglund et al., 1995), but also pulsing ILFN (Kelley, 1987; Noise Bulletin, 2011).

#### *Insufficient setback from residence.*

There is already insufficient setback for planned Crookwell 2 turbines from residential properties, several of which are within a two kilometer setback. This distance was recommended in the early 2000's - increasing the scale of the turbines makes the problem worse such that even at two kilometers there will be significant audible noise and pulsing ILFN. Several of the planned turbines already are well inside two kilometers.

Offshore studies from physicians such as Nissenbaum (Maine, U.S.) compared people who lived within 3,500 feet (about 2/3 of a mile, or just over 1 kilometer) versus people who lived 3 miles away from the 28 wind turbines in Mars Hill, Maine, showing a clear correlation between the wind turbines and health complaints (Nissenbaum et al., 2012). By this time, French and German health experts, British noise experts, and a German project developer recognized the need for greater distances between large wind

turbines and dwellings than were commonly allowed (Chouard, 2006; Noise Association, 2006; Quambusch and Lauffer, 2008; Retexo-RISP-Marketing, 2004; Villey-Migraine, 2004).

In Portugal, complaints of ILFN initially led to the closest turbine [to residential dwellings] ordered to be removed and three others to be shut down at night. Eventually those were ordered removed as well to protect the health and well-being of the residents (Alves-Pereira and Castelo Branco, 2007; Supremo Tribunal de Justiça, 2013).

#### *Concentration of Wind Power development*

The area surrounding Crookwell and the corridor through toward Canberra has seen significant development with multiple wind power developments visible across the district. The proposal to increase the scale of Crookwell 2, and the proposed development of Crookwell 3, will result in unnecessary concentration of power generation within a relatively small valley area. The concentration becomes more of an issue when the scale of the towers and development is increased with very large turbine blades.

The ACT Government has legislated that 100% of its energy needs be generated by renewable sources even though it effectively has almost no energy production in the Territory. With the problems from too high a concentration of intermittent renewable generation initially in South Australia but now impacting National energy policy, it does seem somewhat incongruous that Crookwell 2 is now under consideration to be upsized.

#### *Impact on land values*

There is an accepted view by valuers that wind power developments adversely impact land values of lifestyle and residential properties. It is clear that this impact would be exacerbated by the proposed uplift in scale of the turbines given their increased visual impact to a height of 160M.

There is a view among some valuers that impact on agricultural land values is less relevant as there is little economics attributed to visual or scenic value. There are relatively few large scale farms in the Woodhouselee/Crookwell district, properties typically are at most medium scale and indeed many properties have been subdivided into smaller lifestyle blocks.

Our property at Pejar Park is both a working farm of 1400 acres and a lifestyle property. I believe Pejar Park will likely suffer a loss of value from the increase in scale of the Crookwell 2 development. Increasing the scale of Crookwell 2 as proposed will substantially alter the attractiveness of the area.