Falmouth Health Department

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March 14, 2012

Mass DEP Wind Turbine Docket
One Winter Street
Fourth Floor
Boston, MA 02108

Dear Sirs:

The Falmouth Board of Health has reviewed the "Wind Turbine Health Impact Study: Report of Independent Expert Panel" of January, 2012, prepared for the Massachusetts Department of Environmental Protection (Mass DEP) and Massachusetts Department of Public Health (Mass DPH).

Three land-based Vestas V82 1.65 MW wind turbines are currently functional in Falmouth (two municipal, one private); Falmouth is also home to several smaller wind turbines. During the previous two years the Board has heard multiple complaints from residents who are affected by these wind turbines. Complaints have included sleep disturbance, inability to concentrate, anxiety, headaches (migraines), tinnitus, dizziness, and ear popping. Many of these reports have been previously communicated to the Mass DEP and Mass DPH, and several Falmouth residents have commented directly on this Study, both in writing and in personal testimony.

The Falmouth Board of Health requested guidance from the Mass DEP in March, 2011, regarding appropriate methods for measuring the sound emanating from wind turbines, and appropriate metrics for establishing nuisance or other health effects of wind turbines. We thank the Mass DEP and Mass DPH for preparing the panel report. However, there are a number of unanswered questions that the Board feels warrant urgent consideration.

We generally concur with the Panel's conclusion that "sleep disruption and annoyance may be the most important effects, leading to indirect stress-related health issues." However, in the absence of creditable scientific evidence indicating at what sound levels this may occur, the Board has been reluctant to establish scientifically unsupported limits. Furthermore, as the characteristics of the sound emanating from wind turbines is different from those types of sound used to establish the Mass DEP's Noise Pollution Criteria, we feel that specific guidance is required to address the potential noise pollution and health effects (particularly sleep disruption) of very low amplitude modulation and low-frequency sound.

We respectfully submit the following recommendations:

- **The Mass DEP and Mass DPH should immediately initiate a study to address the influence of wind turbines and/or low frequency noise on sleep.** The Expert Panel concluded that "to date, no study has adequately examined the influence of wind turbines and their effects on sleep." One of the major issues arising from the experience of Falmouth residents appears to be sleep interruption, and other complaints and health effects may stem from this effect. A crucial part of this study would be an accurate assessment of the entire noise spectrum to which participants are exposed and the limits that lead to sleep disturbance.

- **As a preventative measure, the Mass DEP should *quickly* reformulate current nuisance noise specifications and measurement techniques to specifically address the impact of wind turbines and other sources of impulsive and low frequency sound on sleep**. Implementation of the previous recommendation will take some time, especially if the study is scientifically valid. Interim regulatory criteria would provide some guidance to local Boards of Health that are the actual regulatory and enforcement bodies.

- **The Mass DEP should give spectral quality sound guidance specific to amplitude modulated and low-frequency sound**. We agree with the State Panel's suggestion that a difference between A-weighted and C-weighted sound should be part of the noise specifications. Current noise pollution measurement guidelines do not address this. Additional consideration needs to be applied to amplitude modulated noise that may be discounted by current measurement guidelines (i.e. averaging L_{90} over a 10 minute period).

- **Although noise guidelines focused on protecting sleep measured as an absolute dB(A/C) are the most scientifically validated, a more useful regulatory measure would address the potential increase in sound levels (dB(A/C)) over ambient conditions.** A wide range of ambient noise is possible, and general regulatory guidelines addressing the increase above ambient are also relevant to the regulation of wind turbine sound emissions.

The Board appreciates the opportunity to make comments on this Study and looks forward to the final report.

Sincerely,

Falmouth Board of Health

Gail Harkness, Chairwoman

Jared Goldstone, Vice Chairman

George Heufelder

Stephen Rafferty

John Waterbury

Cc:

Falmouth Board of Selectmen

Julian Suso, Town Manager

Falmouth Planning Board