

## NOISE ASSESSMENT REPORT SUMMARY

DixonBrosnan Environmental Consultants were commissioned by Organic Power Ltd. to undertake a noise impact assessment with respect to a proposed wind farm at Enniskeane, Co. Cork. The wind farm will consist of 16 turbines in five clusters located over several townlands to the north and northeast of the village. The local environment is rural in nature. Noise sources present consist of traffic on local roads, agricultural machinery, birdsong, wind movement and overhead aircraft. The noise environment becomes more variable in the vicinity of two settlements in the study area: Newcestown in the northeast and Castletownkinneigh in the northwest. No point sources of significance were noted in the study area during inspections.

The Department of Environment Heritage and Local Government document *Planning guidelines on wind energy development (2006)* sets out guidance criteria to be applied by local authorities in the assessment of planning applications for wind farm developments. The guidelines recommend that a night-time limit of 43 dB should be applied at noise sensitive locations. Daytime limits vary with background noise levels. On the basis of a noise survey undertaken across the study site on 06.06.07, the daytime limit to be applied is 35-40 dB.

A computer based model was used to predict noise levels at all sensitive receptors in the vicinity of the proposed turbines during worst case conditions. The model incorporated several additional features likely to significantly overestimate predicted noise levels, thereby adopting a worst case scenario approach. **In reality, levels predicted by the model are likely to be at least 3 dB lower.** The model indicates the night-time limit of 43 dB will be exceeded by 1 dB at two dwellings, both occupied by project shareholders. During daytime hours, the 35-40 dB range will be exceeded at 22 dwellings during worst case conditions. Application of the 3 dB correction noted above reduces predicted levels towards 40 dB or less at all houses.

The planning guidelines document notes that noise emissions from a wind farm are unlikely to be a significant problem where the distance from the nearest turbine to any noise sensitive property is more than 500 m. Thus a 500 m radius may be applied to the potential impact zone around each turbine.

The turbine model to be installed has not yet been selected. The final selection process will require consideration of issues outside of the planning process such as costs, electricity contracts, etc. In addition, ongoing developments in turbine technology may result in more advanced models becoming available in the future. For the purposes of this assessment, it has been assumed that an Enercon E70 turbine will be installed as this model is currently preferred by the applicant. In the event that an alternative turbine is selected, specific noise data will be examined; if such data indicate that noise emissions will be greater than the Enercon E70 assessed herein, a reappraisal of potential noise impacts will be required.

Some concern has been expressed in the past with respect to low frequency noise emissions from wind turbines ie. emissions at frequencies below 20 Hz. Studies undertaken indicate that the generation of low frequency emissions may be associated with several features of wind turbine design, chiefly whether the blades are positioned upwind or downwind of the tower. Modern turbines such as the Enercon model proposed no longer utilise downwind designs. Thus the turbine nacelle may be rotated to maintain the blades upwind of the tower at all times. This design, coupled with increasingly large separation distances between tower and blades, has effectively eliminated the generation of low frequency noise emissions from modern turbines. Such emissions are not expected to arise with respect to the proposed development.

There will be no tonal components in noise emissions predicted at any of the dwellings in the study area. In addition, there will be no low frequency emissions, and no emissions of impulsive character.

## MITIGATION MEASURES

The above assessment has been undertaken on the basis that the proposed turbines will consist of Enercon E70 models with no power output limits. It is recommended that any proposal to modify or replace this model with an alternative should be accompanied by a reappraisal of noise impacts.

\*It is recommended that all turbines are maintained in accordance with a routine maintenance programme. Malfunctions or damage likely to create potential noise nuisance should be repaired immediately.

\*Certain mitigation measures are recommended particularly with respect to the construction phase. Most importantly, it is recommended that construction hours are confined to normal daytime hours to minimise disturbance to local residents living near the proposed turbine clusters. In addition, it is advisable that residents are informed of any imminent noisy activities, and that a site representative is designated in this regard.

\*All plant used onsite during the construction phase should be maintained in accordance with manufacturer's recommendations. In particular, exhaust and silencer systems on plant should be maintained in a satisfactory condition. Where relevant, plant used onsite should comply with the EC (Construction Plant and Equipment) (Permissible Noise Levels) Regulations, 1988 (SI No. 320 of 1988) and the amending regulations SI No. 297 of 1990.

\*It is recommended that a noise survey is undertaken in the vicinity of the proposed development site within six months following commissioning of the turbines to assess performance and compliance with conditions on noise emissions included in any planning permission granted.