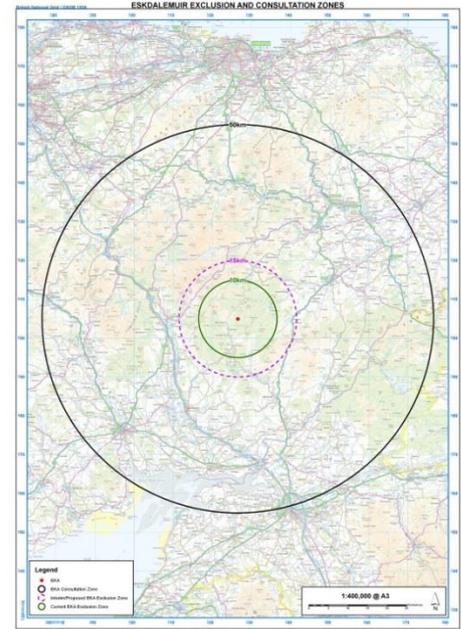


Government Planning Resolution

Design Verification for Microphone Housing Using Acoustic Resonance Analysis



Industry: Energy Government Planning

Application: Planning resolution

Issue

Over 1 GW of potential onshore wind generation was held up in the planning system due to objections from a statutory consultee, the Ministry of Defence (MoD). The MoD are responsible for the operation of a seismic listening station in Eskdalemuir in South West Scotland which would be affected by the seismic vibrations from wind turbines.

Solution

The Eskdalemuir working group were formed with members from both Scottish and UK Government, the MOD, Industry bodies and wind turbine developers. Xi were appointed by this group to resolve the issue which was preventing several hundred turbines from being consented. Working with AWE, Xi produced a physics based model to predict seismic waves created by wind turbines, based on multiple long term seismic measurement campaigns. Custom software was provided to the MOD which is still used today to assess the likely impact of any turbine within 50km of the array.

Xi's Role

Xi conducted the technical work in cooperation with members of the Eskdalemuir Working Group (EWG). We were responsible for reporting and translating complex technical issue to the Government and company representatives of the EWG. The study is available or download on the Scottish Government website:

<http://www.gov.scot/Topics/Business-Industry/Energy/Infrastructure/Energy-Consents/Guidance/reportseismicvibrations>

Skill set used

- Seismic Measurement
- Large Variable Data analysis
- Dynamic Modelling
- Custom Software tool
- Modelling of ground borne vibration from wind turbines

Client Benefits

- Opened up 1GW of potential onshore wind
- Investment in UK renewables
- Job creation
- Solid understanding of ground borne vibrations from wind turbines

What our clients say about us

"I'm delighted to see a Scottish SME, Xi Engineering Consultants Ltd, having been successfully appointed, then go on to undertake such ground-breaking scientific work in cooperation with the MoD's own experts."

Scottish Energy Minister, Fergus Ewing