Australian Acoustical Society
Queensland Division

CHRISTMAS PARTY and Technical Meeting

Wednesday 11 December 2019

The Rooftop Terrace, Brisbane Powerhouse

Wind farm noise and human perception - a field and laboratory study

Dr Kristy Hansen, Flinders University, South Australia

The presence of amplitude modulation (AM) in wind farm noise has been shown to result in increased annoyance. Therefore, it is important to determine how often this characteristic is present. We investigated the prevalence and characteristics of wind farm AM at 9 different residences adjacent a South Australian wind farm that has been the subject of complaints. We showed that an audible indoor low-frequency tone was amplitude modulated at the blade-pass frequency for 20% of the time up to a distance of 2.4 km from the nearest turbine. We also showed that the number of AM events reduced with distance, but that audible indoor AM still occurred for 16% of the time at a distance of 3.5 km. As a follow-up to the field work, we investigated the perceived sleep acceptability of WFN containing low-frequency tonal AM through listening tests involving 13 participants. A total of 13 noise stimuli were synthesised based on real recordings of WFN. The tonal audibility and AM depth were varied within a range relevant to the AM depth measured in field recordings. Responses were highly variable, but in self-reported noise-sensitive individuals, an increase in the AM depth at a tonal audibility of 12 dB(A) was associated with lower acceptability for sleep.

Kristy Hansen is a DECRA Researcher at Flinders University working to identify the disturbing components of wind farm noise to improve compliance testing procedures. She works in a large multi-disciplinary team with sleep physicians, biomedical engineers, nurses, epidemiologists and psychologists at the Adelaide Institute for Sleep Health (https://www.flinders.edu.au/adelaide-institute-sleep-health).

DATE & TIME: **6:30pm, Wednesday, 11 December 2019**

VENUE: **The Rooftop Terrace**
Brisbane Power House
119 Lamington Street, New Farm
http://www.brisbanepowerhouse.org

COST: **Free to AAS Members and to their accompanying partner.**

$40.00 Non-Members, other guests

RSVP: **Friday 6 December 2019**

Richard Devereux
rdevereux@acran.com.au