

Title: **The effect of wind turbines alongside motorways on drivers' behaviour**

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This paper presents the results of an exploratory study aimed at investigating whether the presence of wind turbines in close proximity to motorways leads to behavioural adaptations among passing drivers. Empirical data from loop detectors and temporary video cameras were analysed in a study employing a before-and-after design at a site near Rotterdam, The Netherlands. Analyses of driving speed and standard deviation of speed (corrected for trend effects through the use of comparison sites) were performed as well as analyses of the lateral position and standard deviation of the lateral position and an observation of serious traffic conflicts.

The results showed that constructing wind turbines alongside a motorway led to some clearly observable effects on drivers' behaviour. The analyses of the speed data showed that the mean speed was lowered by 2.24km/h (corrected for trend effects) after the construction of the wind turbines while the standard deviation of the speed significantly increased. After the construction of the wind turbines, drivers took a lateral position somewhat more to the left-hand side in their driving lane. There was a nearly significant indication that the standard deviation of the lateral position slightly increased when the rotor blades were in transversal position. In the before period as well as in the after period, no serious traffic conflicts were registered.

The increase in standard deviation of speed and in lateral position are two factors that intrinsically can have an unfavourable effect on road safety. However, the observed order of magnitude of the change was shown to be quite limited. Earlier research suggests that negative effects on road safety are only expected for changes substantially greater than the ones that were observed in this study. On the other hand, there was a significant reduction in driving speed, which has a favourable effect on the expected number and severity of accidents. From these findings, it can be concluded that, based on the observed variables, no substantial negative effects for road safety were found in the present study. The authors recommend continuous monitoring and further research on the topic.