

Reviewers' comments and authors' responses:
The multiple understandings of wind turbine noise

	Reviewer's Comment	Authors' Response
RC1		
	<p>Overall feedback: The manuscript deals with a very interesting and timely topic of wind turbine noise. Providing a critical, social science view on what is sound and what is noise and how science is involved in production of the phenomenon of noise and how it can be tackled, The MS is written in a way that is accessible to broad readership. In particular, the authors did a good job at positioning themselves in the 'shoes' of technical audience and explained very well their approach and how this manuscript could be useful for them.</p> <p>Your paper as such can help a lot the technical audience to observe the ways in which they tackle the problem of wind turbine sound/noise- in a way you hold a mirror for the- but I believe it is also useful to the policy makers and people involved in legislation as well as management of wind farms. Perhaps you could also mention this audience in your work and conceive recommendations for how this MS is relevant for their work.</p>	<p>Many thanks for the positive reception of our MS, and for the helpful comments and suggestions.</p> <p>We have added these audiences and a brief suggestion as to how this paper could be relevant for their work.</p>
	<p>Abstract:</p> <p>Various communities of scientists, here understood as epistemic groups. Maybe mention that these are groups working in different domains and what are these? Divided into single disciplines or how?</p>	<p>Regarding the abstract, we have restructured it so that our definition of the communities of scientists/epistemic is spelled out from the outset; hereby we will tie the technical literature to the engineering discipline, health-based to medicine/psychology, and social acceptance literature to the social science discipline.</p>
	<p>Introduction:</p> <p>You start by arguing that sound becomes 'politicized noise'. Can you explain what do you mean by this what seems to be a process of politicization</p>	<p>In the revision, we have decided to omit the notion of "politicized" noise as we do not use this term more than once in the MS. Instead, we have reformulated it as "controversial" (that is, contested) noise.</p>
	<p>In the line 35 you discuss the controversies and issues around wind turbine sound, perhaps add reference to prior research that discussed it?</p>	<p>Regarding your comment (line 35) on lacking references regarding controversies and issues around wind turbine sound, we have added some relevant references.</p>
	<p>You state: "These issues and their implications for wind farm development are typical of those seen in Denmark, and there has been significant funding of ambitious projects to resolve the issue." Maybe don't say ambitious projects but make it more specific? Research projects?</p>	<p>Thanks for your comment on the lack of specificity on the type of projects funded to inquire into wind turbine noise. We have omitted the notion of 'ambitious', instead qualifying them according to their type (research, commercial).</p>
	<p>You state " how concepts such as noise are co-produced by the scientific communities that form around them" this is the first time you mention the idea of co-production, maybe good to explain what you mean when you use the concept? Or use a simple term instead.</p> <p>Would it not be useful to discuss the public perceptions of noise? How they are different from the scientific (and as you argue multiple) understandings of sound/noise.</p>	<p>Regarding the notion of co-produced noise, we have decided make a reformulation in order to simplify. We now state that different communities create/produce their own understanding of what noise is, and that this has implications for how they deal with it.</p>

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		In other publications, we have directly addressed public perceptions of noise, but the scope of this paper is to focus on how the scientific literatures have looked at the issue of noise; here, the social acceptance literature is the one engaging most directly with public perceptions. We have added a sentence in the paper on this scoping issue (introduction).
	<p>Results</p> <p>Your results are very interesting but mostly describe the state of art in relation to literature and not views expressed by the experts themselves. On this point, I wonder what was the role of your interviews in the data analysis as you do not seem to draw directly on this data in your results section. Would quotes from your interviews help to enrich the results and provide expert views?</p>	<p>Thanks for this comment. We have now added an explanation of our use of interview data in the methods section. Our main data for this paper has been the literature reviewed (text analysis). We conducted interviews with the purpose of corroborating, cross-checking and verifying our analysis of these texts. Meanwhile, we consider using quotes from these expert interviews out of scope for this paper; we elaborate more on these in other papers.</p>
	<p>As a last point of thought, I am wondering how your analysis what noise is would be if you also took into consideration animals?</p>	<p>Last, we want to thank you for commenting on the issue of animals and their perception of noise. We believe the three reviewed literatures do not deal much with this and so we have not treated it in the MS. We hope that future research could look into this overlooked aspect of wind turbine noise.</p>
EC2	<p>Comments on: The multiple understandings of wind turbine noise: Reviewing scientific attempts at handling uncertainty.</p> <p>My main comment is that the discussion of the fundamentals of sound and the characteristics of noise from wind turbines is insufficient for what the paper is trying to do. The purpose of the paper seems to be to emphasize the importance of the non-technical aspects of noise while deemphasizing, close to</p> <p>denigrating, the "hard science"/technical aspects of noise. By this point in time it is clear from many studies that the sound pressure level at locations in the vicinity of wind turbines, measured in dB(A), is insufficient to explain resistance to wind turbines. The paper does a good job at summarizing some of the key observations in this regard. What is lacking is describing the nature of wind turbine sound and relating it to that resistance. The paper should begin with a review of what sound (and thus noise) are, how they can be quantified, how wind turbines produce sound and how the sound is propagated.</p> <p>[...]</p> <p>The use of predicted average sound pressure level may be less than ideal from a number of perspectives.</p> <p>For regulators to use SPL_{av} as a basis of permitting may compel</p>	<p>Thank you for taking the time to read our paper and for the detailed suggestions to add to our MS.</p> <p>The overall comment concerns the lack of fundamentals of sound and noise characteristics of wind turbines, and the reviewer has kindly provided a number of technical details. We have added some extra details about these aspects where they enhance a particular point (see below). However, given the scope and aim of this paper, namely to offer an account of different understandings of noise, and to do this based on social science methods and perspectives, we cannot go into too many details with the technical aspects. We consider that the fundamentals of sound and noise are well documented in scientific text books and the technical literature, and our aim is not to reiterate these. We have added a further explanation of this in the revised text.</p> <p>Indeed, we argue that through understanding how the different scientific</p>

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	<p>turbine designers and project developers to focus on reducing that average value. If the frequency characteristics are actually more important, then the standards and regulations should be updated accordingly. Turbine designers would have an additional impetus to fine-tune designs, perhaps to even consider "noise cancelling".</p> <p>In summary, there may well be considerations other than purely technical regarding the wind turbine noise conundrum, but it should not be assumed that the average sound power level is the only relevant technical issue.</p>	<p>communities see 'noise' as something different, we highlight why resolving the issue of noise continues to be difficult. We then go on to suggest that these communities could benefit from engaging more with each other, resulting in fresh input to, for example, technical research, and aligning efforts to solve the noise issue.</p> <p>In the revised text we have addressed the following additional technical aspects, to the extent that we consider they augment the paper: frequency and pitch of sound, possibilities for other metrics than dB(A), the average sound level is not the only technical aspect under research, dependency on wind shear, landscape effects, weather impacts, and possibilities for frequency and time-dependent regulations.</p>
EC3	<p>Comments made in text</p> <p>Overall comment</p>	<p>Thanks for the comments provided to our MS, these are all very helpful. We have corrected the text accordingly, regarding language clarifications/definitions.</p> <p>Concerning the overall comment on the 'major omission' – namely the lack of "fundamentals of sound" (p. 16) – we will certainly add some extra lines about these aspects where they enhance a particular point. (Please see the additions made in the comment above). However, given the scope and aim of this paper, namely to offer an account of different understandings of noise, and to do this based on social science methods and perspectives, we cannot go into too many details with the technical aspects. We consider that the fundamentals of sound and noise are well documented in scientific text books and the technical literature, and our aim is not to reiterate these. We have added a further explanation of this in the revised text.</p> <p>Indeed, we argue that through understanding how the different scientific communities see 'noise' as something different, we highlight why resolving the issue of noise continues to be difficult. We then go on to suggest that these communities could benefit from engaging more with each other, resulting in fresh input to, for example, technical research, and aligning efforts to solve the noise issue.</p>