

# ***Interactive comment on “The Takeover of Science Communication – Science Lost its Leading Role in the Public Discourse of Carbon Capture and Storage Research in Daily Newspapers in Germany” by Simon Schneider***

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Re: Research article "The Takeover of Science Communication – Science Lost its Leading Role in the Public Discourse of Carbon Capture and Storage Research in Daily Newspapers in Germany" by Simon Schneider.

GENERAL COMMENTS In this research article the author presents a content analysis of newspaper headlines about Carbon Capture and Storage and Coal published in Germany between 2004 and 2014. A filtered cohort of articles are selected for thematic

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analysis. The author finds that media coverage of CCS is decoupled from science, and is more strongly linked to politics and economics. The author concludes that science PR needs to step up its game if it is to be represented in science journalism. The approach, argument and outcomes of the paper could be of interest to an international and interdisciplinary audience, but some significant improvements must be made to make it accessible to these audiences. For example, the data analysis and presentation needs to be much deeper and much more transparent, and the manuscript content needs to be presented more clearly for non-German audiences and to a higher quality. Further, the title is misleading; there is nothing in the manuscript to suggest that science ever had a leading role in CCS discourse. Finally, there is a fundamental flaw in the assumption that CCS + Coal is, or should be, a predominantly scientific topic, and not a political or economic, or environmental and social justice issue. For this reason, I recommend publication, but subject to major revisions to the article and its framing.

SPECIFIC COMMENTS 1. The analysis is specifically for COAL + CCS. This isn't mentioned in the abstract, or introduction, until the analysis design is outlined. Why are you selecting coal? Presumably because coal + CCS is the predominant conversation in Germany, rather than gas + CCS, or cement/steel works + CCS like the discussions in the UK and elsewhere. But the rationale needs to be stated explicitly, and CCS in Germany should be contextualised in the introduction much more clearly. It may also be worth considering how filtering for coal headlines might this affect the results. But here lies one of the major flaws in this paper. Coal extraction and combustion is laced with issues around pollution and human health, climate change, continued industrialisation of the landscape and the ethical and moral discussions that arise from this – including the displacement of communities, not to mention employment, economic wealth and so forth. In addition, CCS is not necessarily a topic for science. Sure, there are scientific fundamentals behind CCS, as the author correctly states on page 3 line 1. But, the not only is the science of CCS not particularly novel or innovating (the science/engineering components of CCS have individually been around for a long time, and so are not brand new exciting science), CCS is a climate change mitigation

technique. While climate change is, at its core, a scientific issue, the solutions are not scientific; they are societal and economic and political etc. So, why would we expect CCS to be predominantly the domain of science journalism? The author needs to re-consider this assumption, and the framing of the paper to reflect this. 2. The author doesn't satisfyingly explore in the article (ie in the introduction, discussion or conclusions) what the purpose of science PR is, and whether the purpose or role or intentions are affecting how it is then portrayed in the media. If the purpose of Science PR is to "inform" as hinted at on page 5, then is it problematic that CCS journalism doesn't hugely cover science/scientists? What is the author wanting to see instead? A report on CCS policy and the progress in CCS law with a commentary from a scientist about CCS? This is a slightly complex and thorny issue which isn't currently very well considered in the manuscript. 3. It is not clear what media the publications analysed were, are these online and/or print articles, are they hosted/written by news organisations, topic specific organisations (e.g. Carbon Brief) or e.g. by interest groups? Are they opinion pieces? How might these different article types influence the results? Further, why was a cut off of 40 articles chosen? Please give the rationale, even if it is simply arbitrary. And why isn't the horizontal line in Figure 1 at 40, not at ~35? It is also not very clear about whether the headline was analysed, or the article content, and how (i.e. what tools were used). I am assuming the content was analysed because the author then goes on to talk about actors specifically mentioned in the articles, but, as I say, this isn't very clear in the manuscript. 4. In the current manuscript, there is no mention of what other studies have been done on content analysis around CCS in the news, and e.g. twitter etc. I would expect to see this in the introduction. 5. In the introduction there are some paragraphs that make many claims or statements with no references in them. Please provide references. E.g. page 3 line 6-12; page 5, lines 2-5, lines 6-12; page 6 line 1-14. 6. It is somewhat confusing to follow the discussions of timelines and events in Section 2.2, particularly on Page 9. Please add in dates to help the reader. For example, the year & common name of the Durban Climate Change Conference (COP17), when was Schwarze-Pumpe opened/closed and so on. In fact, I

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would recommend compiling a timeline of CCS relevant events in Germany (and world-wide if relevant), and mapping the thematic analysis to this timeline. I would like to see plots like Fig 2 for e.g. each year analysed. Without this, there isn't evidence to back up the observations made. Also, a lot more could be said about the events/developments, for example, what was Schwarze-Pumpe? Why did BGR decide not to publish the report? What was the CCS law attempting to outline / achieve? Without more detail on these, it is difficult for the author or for the reader to map the thematic analysis results to the evolution of the CCS discussions in Germany. 7. Please define the themes depicted in Figure 2, either in the article main text or, better, in a table beneath the figure. What does "CCS exit" mean? What sort of thing is included in "pilot plant" theme, or "overview about CCS". 8. It is not very clear exactly what is determined to be "negative" or "neutral" or "positive" portrayal of CCS. Can the author give examples of what is looked for to determine this? I.e. the methodology / the issue. 9. The author presents table 1, of the degree of positive/negative articles for different actors. But what about for the different themes solicited in figure 2? Is there a trend for positivity for these different themes? I would expect, for example, "overview of CCS" to be neutral. 10. I would like to see results like those in Figure 2 and Table 1, for the four key stakeholder groups identified in the introduction. 11. In the paper there is a lot of discussion about the role of emotion in reporting, but a) little reflection on the importance of emotion as a communication tool and whether emotion itself is actually problematic (it seems to be presented as problematic in the article), and b) without any analysis of emotion in the content of the articles, as far as I can see. How might the author define 'emotional content' in the articles? Which have emotionally captivating headlines like that identified by Greenpeace in (page 5 line 20). 12. Page 12, line 4. Why would these conferences attract the attention of media? Many conferences don't have media coverage, because the public isn't really a key 'audience' for a conference, whereas for a political statement, the public is the audience. I find these sorts of statements a bit nonsensical. 13. I find the conclusions not only a bit jumbled and confusing with various grammatical errors, but also full of bold claims and subjective argument that seems to be uncoupled

from the study itself, and more towards an opinion piece. While I can see where the author is coming from, as I say, the statements are currently decoupled from the paper text. I strongly recommend revisiting the conclusions and re-writing them to be clearer, and to weave in the study outcomes much better.

TECHNICAL CORRECTIONS 1. The text refers to "we" and "the authors" but there is only one author. Should there be co-authors listed? If not, and this is truly has single authorship, then these need to be changed to be singular. 2. I find the current numbered system confusing. Section 2 is Analysis design, but then the results follow in subsections, leading me to think that these were also design elements rather than results. I suggest renumbering, with Section 2 = Methods; Section 3 = Analysis/results/discussion, section 4 = conclusions. 3. Figure 1 caption: should be May not Mai. Also the X axis units don't seem to be consistent. Please replot the figure with more comprehensible unit divisions. Also, see point 2 and 5 above) 4. Page 3, line 7: Please number the four stakeholder groups, else it looks like there are 5 or more here. 5. Page 12, line 12: "do surprise" should be "are surprising" 6. This is purely a preference thing, but I really don't like Public Interest Groups being called "PIGs", even though I know it is a commonly used acronym. This is because of the negative connotations that come with calling people pigs, and particularly when there is already tensions between dismissing public voices (like using phrases such as NIMBY and so on) especially around energy / politics. I suggest using simply IGs (Interest Groups) or community interest groups (CIGs - which although sounds like cigarettes is less offensive than pigs!) or even public or community interest groups (PCIGs) would be preferable. 7. Page 3 line 23 and the rest of that paragraph. H = hypothesis? If so, make this clear. 8. Page 5, line 23: "facts" can be a somewhat loaded word. Suggest avoid, and say "factual information" instead, or scientific information. 9. I don't think the author should assume that the reader knows where Brandenburg or Spremberg is, or that the Bundestag is the German Parliament, and so on. I suggest making all these things very clear, not only so that an international audience can follow the paper, but also so that the research outcomes are relevant to international audiences. 10. Like-

wise, I would always recommend defining ANY acronyms, no matter how 'obvious', so that the paper can be accessible to as many readers as possible. So, words like CCS, PR, NGOs, H should be explicitly made clear what they stand for. The author does this with some words (PIKS, BUND etc) but not all. 11. Page 9 line 6: Which four aspects? Please list them to make it explicit to the reader. 12. Page 11 line 7: by "energy providers" do you mean Vattenfall or do you mean all of them (EON, RWE, EnBW etc). 13. Table 1: caption /headings needs to be clearer. If these are actors, not subjects, then the categories are "Politicians" not politics, and e.g. "Scientists", "NGO representatives", "Economists".

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