

### **Declaration of Professor Peter A. Strachan**

1. My name is Peter Anderson Strachan. I am over 18 years of age and am competent to make the following declaration.
2. I have been an academic member of staff at the Robert Gordon University, Aberdeen, Scotland, since 1993. I am currently Professor of Energy Policy at the Aberdeen Business School. I was appointed Professor of Energy Policy in 2009 and subsequently appointed in 2010 to the role of Group Lead for Strategy and Policy, responsible for a research and teaching group of approximately 20 full-time and part-time academic staff. Following University re-organisation, I returned to my role as Professor of Energy Policy in 2017. My most recent publications are in prestigious peer reviewed journals such as Energy Policy (2019) and Utilities Policy (2020) on the theme of offshore wind power.
3. As an author and co-author, I have an extensive publication record with my work focusing on the transition to 100% renewable energy in Scotland and the other countries that comprise the United Kingdom. I have edited three books and have also served as a journal Associate Editor. Further, I am an active member of several editorial boards. My work by invitation has been presented to the First Minister of Scotland, Holyrood, Edinburgh, Scotland and to Members of Parliament (MPs) of the United Kingdom Parliament, Westminster, London, England. I also receive regular invitations to present at academic and industry events on renewable energy issues. A full list of articles and presentations is available on request. I have also supervised to successful completion 18 doctoral students, with a number of these on renewable energy deployment, particularly in Africa.
4. My research on renewable energy has been funded by Innovate UK and the United Kingdom Economic and Social Research Council (ESRC). The research I work on in Scotland and Europe is very similar to the work on renewable energy published by Dr Jacobson in the context of the United States. Therefore, I have specific expertise to comment on the papers published by PNAS by Dr Jacobson et al. and Dr Clack et al. in 2015 and 2017, respectively. I am familiar with both papers and have spent some time re-reading and then re-evaluating them in the context of making this declaration.
5. I am aware that Dr Jacobson has initiated litigation against Dr Clack on the basis that the Dr Clack PNAS paper and resulting media coverage misrepresented the findings of Dr Jacobson's article and that this has had a detrimental impact on his professional reputation and wider standing in the public domain.
6. I have not been involved in the litigation and am not a co-author, of either of the papers relevant to this litigation. I have not published with Dr Jacobson or any of the authors of the Dr Clack et al. (2017) paper and have no professional association (joint research funding or PhD supervision) with these authors. Therefore, I am offering the following declaration in an independent capacity.
7. Dr Jacobson has requested my expert opinion and has asked me to comment on three issues raised by this case and these are set out in my declaration in points 10-13 below. However, my declaration has been extended to provide comment on related matters points 8 and 9 below which I think are important, and that the Court may consider of wider relevance.
8. As an expert with considerable experience of publishing, I am astonished that the Dr Clack et al. (2017) paper was published by PNAS as a research article. The PNAS publication guidelines are publicly available, with the Dr Clack et al. (2017) paper apparently contravening these guidelines, as there is no original research in the Dr Clack et al. (2017) paper, which in my perception must call into question the commissioning as well as the referee process for their paper. I am dismayed that the journal commissioning editor never identified this important point prior to sending the paper to referees. Furthermore, the referee process must also be called into question,

given the apparent errors by Dr Clack and his co-authors (which I comment on below) in the published version of their paper. If the court considers relevant and if it has not already done so, it should in my opinion request all email and other relevant correspondence from the PNAS on the commissioning process, the resulting referee process, decisions made on publication, and come to a view on how rigorous this overall process was.

9. It is my perception that Dr Jacobson has suffered significant loss of professional reputation and public standing following the publication of this paper and the media coverage that has followed. I have for example witnessed Dr Jacobson's work being unfairly mocked in social media outlets such as Twitter, with the Dr Clack et al. (2017) paper then cited as evidence that Dr Jacobson's work is in some way flawed (which in my expert opinion it is not). It is also my view that Dr Ken Caldeira (@KenCaldeira) continues to inflame this situation with recent social media posts such as that on 10<sup>th</sup> July 2020. Dr Caldeira has more than 24,000 Twitter followers. In the energy space this is a large following. The tweet in question was retweeted 95 times and liked 234 times. This tweet received numerous comments some of which I consider potentially defamatory towards Dr Jacobson, though that would be for a Court to decide.
10. More specifically Dr Jacobson has asked me to comment on three issues:
  - 10.1) Does Table 1 in the Dr Jacobson et al. paper (2015) contain maximum or average values?
  - 10.2) Did the Dr Jacobson et al. (2015) paper contain imported Canadian Hydro power as part of its results?
  - 10.3) Is there a modelling error in Dr Jacobson's Loadmatch computer code that he used in his (2015) paper?
11. From reading the Dr Jacobson et al. (2015) paper and diligently following up on sources contained within the paper – as a professionally qualified researcher would always do – it is clear that the answer to the question contained in 10.1 above is *average*, as correctly stated by Dr Jacobson. I am confused as to why Dr Clack and his co-authors made such a basic error. Furthermore, and as part of the referee process for the Dr Clack et al. (2017) paper, I am astonished that the Dr Clack et al. (2017) error was not identified by suitably qualified referees. There should be no scientific disagreement as to the question of *average*. This is a point of fact.
12. In answering the question in 10.2, the Dr Jacobson et al. (2015) paper contained *Canadian Hydro Power*, as correctly stated by Dr Jacobson. Therefore, I am again perplexed as to why Dr Clack and his co-authors made yet another basic error. Furthermore, and as part of the referee process for the Dr Clack et al. (2017) paper, I would have expected a robust editor and referee process to have identified their obvious errors. There should be no scientific disagreement as to the question of *Canadian Hydro Power*. This is another point of fact.
13. In answering the question in 10.3, I would need to defer to a modelling expert as this is beyond my specific area of expertise, but it would appear to me as a professionally qualified researcher with a PhD in mixed research methods, that Dr Clack et al. (2017) based their assumptions on an incorrect reading of the Jacobson et al. (2015) paper as noted above. There is no substantive evidence available that Dr Jacobson et al.'s (2015) paper contains any modelling errors, which I interpret to mean "computer bugs" and not poor assumptions given that there are separate sections for "Modelling Errors" and "Implausible Assumptions" in the Dr Clack et al. (2017) paper. The Dr Clack et al. (2017) analysis appears to be entirely speculative rather than based on scientific evidence and facts.
14. It is my view that Dr Clack et al. (2017) reached erroneous conclusions, which may have been confounded by both the commissioning of this piece, a lack of editor and

referee scrutiny during the review process, and further exacerbated by the fact that the inclusion of the Dr Clack et al. (2017) paper appears to contravene the Journal's own publication guidelines. As a matter of fact, the Dr Clack et al. (2017) paper is not a "Research Article" as generally defined by the scientific community and more specifically the journals own guidelines. In my view the Dr Clack et al. (2017) paper is no more than an extremely well written (in style, only) but very poorly researched opinion piece that lacks a robust reading of the Jacobson et al. (2015) paper, but yet it has been presented by PNAS as a "Research Article".

15. To conclude, I have also witnessed that Dr Jacobson has suffered significant loss of professional reputation and public standing following the publication of the Dr Clack et al. (2017) paper, and the media coverage that subsequently followed. At least one of co-authors of the Dr Clack et al. (2017) paper, as outlined above, continues to inflame this situation given continued social media posts which result in potentially defamatory comments being made against Dr Jacobson.

*I declare under penalty of perjury that the following is true and correct. Executed on 10<sup>th</sup> August 2020.*

A handwritten signature in black ink that reads "Peter A. Strachan". The signature is written in a cursive, slightly slanted style.

*Signed: Professor Peter A. Strachan of 2 Henderson Park, Peterhead, Aberdeenshire, Scotland*

*Dated: 10<sup>th</sup> August 2020*