



Working Party Research Topic/Title:-	Climate Sensitivity (The climate's sensitivity to greenhouse gas)
Practice Area Research Committee Member Shadow:-	GI and Sustainability
Source of idea/"Initiator":-	There is a large uncertainty range for climate sensitivity. A risk-based approach would lead to using the high end of the range for policy decisions e.g. setting carbon budgets for net zero and preparing for risk mitigation actions to avoid ruinous climate change. This has not been the case to date.
Working Party Chair:-	Oliver Bettis
What issue is this research topic trying to address:-	"Climate Sensitivity" is a measure of the climate's sensitivity to greenhouse gas i.e. how much the Earth warms per unit of CO ₂ , normally defined with the yardstick of doubled CO ₂ compared to the pre-industrial level. There is a high degree of uncertainty over this value. Recently the global temperature has been higher than expected from climate models, this is a concern and should be investigated.
Who will be the audience for this research:- <i>(We need to understand who we believe this research will be of interest to – to ensure we have an end consumer for the research)</i>	Actuaries and all interested in climate change policy. .
What do we see as being the output/deliverables of this research:-	<p>There will be two workstreams that will start at the same time, followed by a third output that builds on the first two.</p> <ol style="list-style-type: none"> 1. "Climate Sensitivity" – this workstream will summarise the state of evolving knowledge on climate sensitivity, how deviations in actual experience from expected climate change point to gaps in our understanding, and examine possible explanations. We would use results from a diverse range of climate science to arrive at a robust understanding of the sources of uncertainty. And use the latest science (post IPCC AR6) to come to a view on the most likely range for climate sensitivity, if possible. 2. "Responding to a Worsening Climate Outlook" – this will explore all the options for using technology to temper or reverse accelerating climate change in the short-term and look at the advantages and disadvantages of these within a risk-based framework. Risk of interventions will be assessed against risk of climate change, including climate tipping points. <p>Work-stream 1 will have a mixture of climate scientists and actuaries, workstream 2 may be of more interest to risk and actuarial specialists. The third output, building on the first 2 is as follows:</p>



	<p>3. “Higher Climate Sensitivity Scenarios” – This will work backwards from a climate change target to obtain an implied carbon budget. If climate sensitivity is high then the carbon budget will be negative, implying CO₂ must be removed from the atmosphere to avoid an unacceptable level of warming. How much CO₂ must be removed to support long-term prosperity for the global population? What are the technologies that are needed and what does this mean for the global economy?</p>
<p>What are the time scales of this research:-</p>	<p>The first milestone is the Tipping Points conference starting 30 June 2025 https://global-tipping-points.org/conference-2025/ first results could be circulated in this conference. The next milestone is the Life and GIRO conferences in Oct/Nov 2025 which provides an opportunity for feedback. Workstreams 1 and 2 should be completed in time for COP 30 which starts on 10th November 2025. Output 3 should be completed in time for COP 31, towards the end of 2026.</p>
<p>What previous work has been done in this area recently, within the profession please email libraries@actuaries.org.uk, other professions/academia:-</p>	<p>The Climate Scorpion and Planetary Solvency reports are relevant. Climate Scorpion points out the large range for the IPCC’s estimate of climate sensitivity and Planetary Solvency outlines the consequences of high levels of warming. There is no other known previous work within the IFoA on the specific issue of estimating climate sensitivity and implications of high sensitivity.</p>
<p>Will 3rd party data be used? If so a protocol will be developed to support you</p>	<p>Published scientific papers will be used. It’s possible that data will be used e.g. data on paleoclimate such as https://www.nature.com/collections/igihabcafh.</p>
<p>Proposed membership:- <i>The IFoA is registered as a Data Controller in terms of the Data Protection Act 1998. The contact details provided (i.e. names and email addresses) will be shared among the members of this working party, the Practice Area Research Committee and the relevant Practice Area Board in relation to the research topic detailed above. The information provided will be used for the purposes of facilitating the completion of the proposed research. The IFoA will not pass your personal information to any other third party without your consent. If you would prefer that your details are not shared in this way, please contact a member of the Communities Team.</i> Professional.communities@actuaries.org.uk</p>	<p>Membership would be a combination of risk experts (actuaries and possibly other non-actuary risk specialists) and climate scientists. For output 1 we need the help of climate scientists, particularly those involved in researching paleoclimate. Output 2 might be of more interest to risk experts and actuaries.</p>
<p>If currently operational, add list of members:</p>	
<p>Additional volunteers required:-</p>	<p>Actuaries, other risk experts and climate scientists.</p>
<p>Frequency and type of meeting:-</p>	<p>Virtual meetings every 2 to 4 weeks initially.</p>
<p>Engagement with external stakeholders – Public Affairs will support and arrange for you</p>	<p>One way that outputs from this working party would be used for external engagement would be</p>



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	that results are used as inputs to a follow-up to the Planetary Solvency report.
<p>IFoA resource and support required:-</p> <p><i>The Communities Team and Research and Knowledge teams can offer various levels of support during the life of your working party; however we would ask that a member of your working party be responsible for keeping minutes or action points from each of your meetings.</i></p> <p><i>It is important that the working party provides updates to the Communities Manager on an on-going basis, preferably after every meeting. This will ensure that the Board and other committees are kept informed of the work of the working party.</i></p>	



Working Party Terms of Reference

(In conjunction with the 'Guidance for Member Led Research Working Parties' and the Volunteer Induction Pack)

Legal Issues to Note

Intellectual property issues

As our members and the wider public will appreciate, we want to ensure that the work produced by our working parties remains the intellectual property of the IFoA and not of individual members, their employers or of the working party itself. This means that that work can be used and disseminated by the IFoA to its members, stakeholders and the wider public to advance all matters relevant to actuarial science and promote the work of the wider actuarial profession.

The IFoA is very grateful to the members and their employers for the time, effort and work which is devoted to the working parties for the shared benefit of all members and the public. However, we also appreciate that employers may have their own intellectual property rights in that material – or even license it to/from third parties – and we need to make sure that the working party is not using that material without the employer's, or third party's consent. Members should remember that they need to get the consent of their employer or relevant third party to bring that material to the working party to use.

In recognition of the support provided by individuals and their employers, all material which is permitted to be used will, of course, be credited – noting the sources or contributors by name in the final work product generated by our working parties. Employers can also raise their own profile by allowing staff to sit on working parties and to have their firms acknowledged as supporting contributors in the final products.

The IFoA has some very short consent forms for our members to use if they do wish to use their employer's or a third party's work which will enable the Executive to compile a list of contributors to be referenced in the final work product. Please approach your relevant Practices Manager for more details. Again, the IFoA cannot provide members with advice in relation to intellectual property law and members may need to consult their own in-house lawyers or external legal advisers about this if they are in any doubt as to their obligations or if they have any concerns.

Further guidance

- The [UK Intellectual Property Office](#) has some helpful guidance for members on basic intellectual property issues.
- The World Intellectual Property Office's website also provides some [helpful guidance on intellectual property matters](#).

Competition law issues

It is the IFoA's policy to comply with competition law – this applies both to the IFoA itself and to our members. Some working parties will come across competition law issues due to the nature of their research work. Members who are on such working parties must be aware of this issue and be prepared to take steps to avoid any breach of the relevant competition laws.

We have produced an informative video clip which sets out some helpful guidance that working party members should bear in mind regarding competition law. However, we cannot provide advice to members, individual members may need to consult their own in-house lawyers or external legal advisers about this if they are in any doubt as to their obligations or if they have any concerns.

For members who are interested, the IFoA has also produced a short note on competition law issues which may impact our working party members. (See Appendix B, page 15)

Further guidance

The Office of Fair Trading (OFT) investigates competition law issues and has some [handy guides](#) which members might find useful.

The OFT also mentions the [Competition Pro Bono Scheme](#) which offers some free legal advice to individuals and businesses who believe that their rights under competition law have been infringed or who are concerned that they may be in breach of any relevant laws. Members may also find this useful.

Conflicts of Interest

Consider any conflicts of interest issues which might arise by virtue of a member's membership on the working party and which might breach the [Actuaries' Code](#) provisions